LACUS FORUM XXXVII

Communication and Cognition: Multidisciplinary Perspectives

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LACUS FORUM XXXVII

COMMUNICATION AND COGNITION: MULTIDISCIPLINARY PERSPECTIVES

EDITED BY

Michael D. Kliffer
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PREFACE

The thirty-seventh annual meeting of the Linguistics Society of Canada and the United States was held July 20 to July 24, 2010 at McMaster University in Hamilton, Ontario. The conference theme was “Communication and Cognition” referencing the rich cognitivist tradition of many streams of inquiry within the LACUS universe, as well as the broad “language in context,” taken by many, who situate language as a theoretical and empirical object within the greater flow of human communication. Contributions were welcomed that examined any vein of this rich theme. Of course, in keeping with longstanding LACUS tradition, papers were welcome from any area of language study, both theoretical and empirical. Contributions came from a very broad spectrum of disciplinary backgrounds, encouraging healthy debate and the friendly presentation of often radically differing perspectives on how language is structured and organized in the mind and in social life.

McMaster University’s campus was in the height and hot days of a glorious summer and accommodations were plentiful and convenient for meeting the diverse needs of the LACUS crew. Mike Kliffer and Alex Sévigny, two of the editors of this volume, were also the site hosts and event organizers. Conference attendees were able to experience McMaster’s beautiful campus, situated in the heart of the Cootes Paradise conservation area as well as a guided visit to the famous African Lion Safari zoo, which made for a wonderful afternoon. The cheetahs were particularly impressive, approaching the fence and offering remarkable views to the LACUS members watching from the tour bus.

Major presentations were offered by Andrew Laing, president of Cormex Research in Toronto who gave a masterful keynote on the evolving science of content analysis and Sydney Lamb who spoke about the theory outlined in his then recently published book, Pathways of the Brain. Both were very well received by the audience which had many thought-provoking comments and questions for the speakers.

This volume continues the tradition of openness and diversity established by LACUS over the forty years of its existence. The volume contains articles on a wide range of topics from across the spectrum of language, communication and cognition. This diversity emphasizes the fact - central to the thinking of many LACUS participants – that language cannot be studied in a vacuum or as a discrete object. Rather, it is a current in a large river of information exchange – a current that interacts with other currents to form the delicate meanings and complex structures that define human communication.

The papers included in this volume have gone through a two-step review process. First, the review of abstracts submitted to the conference; second, the review of submitted manuscripts. Referees for the first step were members of the LACUS Board of Directors and members of the Program Committee. Reviewers for the second step were the members of the Publications Committee. At both stages, continuing the LACUS tradition, reviewers not only recommended acceptance or rejection. Rather, they offered extensive help where needed to authors whose abstracts or manuscripts

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could use improvement. Almost all manuscripts were significantly revised after the conference before being submitted for publication, with authors strongly encouraged to take into account the lively and constructive conversations that are the hallmark of LACUS meetings.

The co-editors would like to offer special thanks to Dan Mailman for laying out this volume. As well, sincere thanks is due to all anonymous peer reviewers who took time out of their busy professional lives to perform the task of assuring the quality of the manuscripts that became the articles you are reading here. Thanks to the staff at the African Lion Safari near Hamilton, Ontario for delivering a wonderful experience to our conference delegates. Finally, a big thank you to the conference planning committee as well as the legion of volunteers who helped make the LACUS conference at McMaster University the success that it was.

-Michael D. Kliffer & Alexandre Sévigny, October, 2014

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Featured Lectures

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DISCOURSE ANALYSIS AND GRAMMAR: FUNCTIONAL DIFFERENCES IN DISCOURSE BETWEEN HEAD-INITIAL AND HEAD-FINAL LANGUAGES

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Abstract. Grammatical differences between head-initial and head-final languages often display a mirror-image syntactic march in opposite directions. The head noun comes before the relative clause in English, a (weakly) head-initial language, while it comes after the relative clause in Korean, a strongly head-final language. Adverbial clauses of time, purpose, or reason in English may occur postposed after the main clause as well as preposed, while they occur only preposed in Korean. Such differences in syntactic order in the same type of construction may result in different information flow in discourse, e.g., who is introduced first in the story and which comes first, reason or result. This study compares functional differences between English and Korean relative clauses and adverbial clauses in their discourse context and finds that such differences are related to participant reference, foreground versus background information, focus and topic, right-dislocation versus left-dislocation, and inductive versus deductive reasoning preferences.

Keywords: English, Korean, Head-Initial, Head-Final, Relative Clauses, Participants, Participant Reference, Adverbial Clauses, Inductive, Deductive, Translation

Languages: English, Korean, Japanese

In doing discourse analysis, we ask different types of questions: *what* (forms and constructions), *how* (how a form is structured and formulated, and *why* (why the form is used).[1] While the first two questions, *what* and *how*, are closely tied to morphology and syntax, the *why* type is especially important in discourse. For what purpose and function is a form or construction used in discourse context? A native speaker of Korean (a strongly head-final language), I have been teaching grammar and discourse analysis to speakers of English (a weakly head-initial language), with English as the medium of instruction. During these years of teaching, I have been made aware of and have been doing research on functional differences between the two languages. Head-initial and head-final languages typically have the mirror-image syntactic march—they unfold in opposite directions. This may result in the differences in the presentation order of information in discourse, e.g., which participant is introduced first or which clause comes first, reason or result.

This paper addresses functional differences between the two typologically divergent languages in the context of discourse, dealing with some syntactic construc-

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[1] I am grateful to Jan Allen, Bob Dooley, Marlin Leaders, Stephen Levinsohn, and Catherine McGuckin for their helpful comments.

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tions. However, we first need to deal with the issue of cross-linguistic categories. We ask if syntactic categories like a relative clause are really comparable across languages, given the fact that the constructions differ (*what* and *how* questions) for the so-called same category in different languages. Are we comparing Gala apples with Fuji apples, or Gala apples with oranges? Once we establish that categories and constructions like a relative clause are indeed comparable regardless of the language type, we ask: what impact or function does the same construction in the two types of languages have in context (the *why* question)? The present paper covers functional differences between English and Korean in the use of relative clauses and adverbial clauses. The differences in information flow are related to such discourse considerations as participant reference, foreground versus background information, focus and topic, right-dislocation versus left-dislocation, and inductive versus deductive reasoning preferences.

The topics covered here are important not only in discourse analysis but also in functional linguistics, in the search for semantic and discourse motivations for structures, language universals and linguistic typology, and translation across different types of languages. Section 1 deals with the issue of cross-linguistic categories and argues that they are comparable across languages by considering both semantic and syntactic features. Section 2 compares the discourse functions of both relative clauses and adverbial clauses in the two languages. Section 3 highlights differences in rhetorical styles, inductive versus deductive, as they are related to headedness, and presents brief conclusions.

1. Cross-linguistic categories and comparability. This topic created a debate on the FUNKNET discussion list in March, 2010. Some asked the question: Is it valid to posit cross-linguistic categories when they are not the same across languages? Some linguists, like Croft, argue that cross-linguistic formal, grammatical categories do not exist, since they differ across languages. They propose that cross-linguistic comparison be based on semantic categories which are cross-linguistically valid. Others, like Haspelmath and Moravcsik, state that cross-linguistic grammatical categories can be posited. Things can be the same in some aspects and not the same in other aspects, and yet they can be assigned to the same category. I agree with the latter group that it is valid to posit the cross-linguistic categories. If not, we cannot talk about grammatical categories like adjective, ergativity, or tense as they are found in different languages. We need, however, to seek both cross-linguistic definitions of grammatical categories and language-specific definitions.

In comparing given grammatical constructions across languages, special care must be taken, especially in counting frequencies. I will illustrate this with studies on relative clauses. Fox (1987) presents a revision of the upper end of the NP accessibility hierarchy for predicting which grammatical roles in the relative clause can be relativized and are more frequent. She argues that the subject primacy hypothesis underlying the original scheme (Keenan & Comrie 1977) must be replaced by the absolutive hypothesis and proposes a revision at its upper end:

S/O > A > IO

instead of

S > O > IO

Part of her argument is based on the frequency of the grammatical relation O in the relative clauses in her English conversational data corpus. O relatives were far more frequent than the transitive subject A relatives, and similar to, or even slightly more frequent than, the intransitive subject S relatives in her data corpus.

Her data included a lot of relative clauses with the verb *have*, no doubt due to the nature of everyday conversation. Possession, however, is expressed in many languages, not predominantly by a transitive clause but by an existential clause like ‘To me a car exists’. The car in that situation would not be counted as an O but an S. Thus we propose a scheme that combines both the subject primacy and the absolutive hypothesis.

S > O > A > IO

In the frequency counts of Japanese, Korean, and Indonesian data in published papers (Collier-Sanuki 1993, Hwang 1996, Ewing 1991), S was more than double or sometimes triple the counts of O. A, however, was slightly lower than O in all these studies, which causes the position of O in the NP accessibility hierarchy to be higher than A, but lower than S. So to repeat my view, for a grammatical construction we need both cross-linguistic criteria (broad enough to be applicable to all or most languages) and language-specific criteria to define the category. But we need to take special care in the statistical counts of the textual frequencies of a construction.

2. Grammatical constructions and their discourse functions. The grammatical features that present a mirror image between strongly head-initial (VO) languages and strongly head-final (OV) languages can be overwhelming. The radical difference in ordering of information in typologically diverse languages can be seen below (selected from Hwang 1994a).

	Head-Initial	**Head-Final**
	VO (VSO, SVO)	OV (SOV)
Adposition:	Preposition	Postposition
NP Modifier (Adj., Gen., Rel. Clause, Determiner, Numeral):	Noun-Modifier	Modifier-Noun
Main Verb & Auxiliary:	Aux-Main	Main-Aux
Affixation:	Prefixation (and Suffixation)	Suffixation
Question & Negation:	Q-Neg-Proposition	Proposition-Neg-Q
Complementation:	Verb-Complement	Complement-Verb
Title:	Title-Name	Name-Title
Name:	Given-Family	Family-Given
Conjunction:	Conj-Clause, ...	Clause-Conj, ...
Adverbial Clauses:	Postposed (and Preposed)	Preposed

Researchers in the area of universals and typology are mainly concerned with the adposition, and the order of the genitive, adjective, or relative clause relative to the head noun. Others deal with additional parameters, such as the title and name. I

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believe, however, that the position of conjunctions, whether prepositional or postpositional, and that of adverbial clauses, whether preposed or postposed, have crucial relevance to their use in discourse.

Regardless of the typological type, there is a progression of information flow at different constituent levels that helps the reader understand the text. A topic sentence, clause, or phrase usually occurs at the beginning of a paragraph or sentence to orient the reader or hearer. Each paragraph tends to have an appropriate point of departure or topic to guide the reader. In (1) below from Pike (1982:8-9), the initial prepositional phrases identify the topics that are being compared.

(1) a. In the inductive approach, some available data may be carefully classified as elements ... (2 more sentences)
b. In a deductive, formal approach, one guesses, to reach an idea of a larger pattern ... (3 more sentences)

These topic phrases (marked off by a comma and their own intonation contour) need to be in the initial position of the first sentences in each paragraph in Korean as well as in English in order to give a proper orientation to the reader.

2.1. RELATIVE CLAUSES. From a cross-linguistic perspective, relative clauses (RC) may be defined broadly as a (restricting)[2] clause modifying a head noun, occurring inside (or embedded in) a noun phrase. In English, they follow the head noun, commonly using a relative-pronoun strategy, such as *who* and *whom*. In Korean, they may be defined as clauses with a modifying ending (*-un, -nun, -ul*), which precedes a head noun and whose coreferential noun is deleted in the clause (a gapping strategy). The restriction of coreferentiality is necessary to distinguish them from complement clauses (CC), since both RC and CC take the same modifying endings, which are glossed by linguists as relativizers or complementizers. This can apply to English as well, but with a slight difference between them.

(2) a. The evidence that/which they used for the case was clear.
b. The evidence that/*which he was present at the scene was clear.

The complement clause in (2b) may not take *which*, while the relative clause can. In languages with a gapping strategy, however, there may be no surface indicator for RC vs. CC.

The discourse functions of RCs are closely tied to syntactic forms and constituent orders: (1) postnominal vs. prenominal relativization, (2) grammatical role of the head noun in the main clause, and (3) GR of the coreferential noun in RC. The English RC is postnominal, which is a more common pattern cross-linguistically, while the Korean RC is prenominal, which occurs in some verb-final languages.[3]

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[2] Some researchers (e.g., Andrews 2007) limit their discussion of RCs to restrictive RCs, which are the true RCs. In this paper we include nonrestrictive RCs that provide additional information as well, as in Fox and Thompson (1990) and Hwang (1990); the two types are not distinct syntactically in many languages.

[3] Relative clauses are marked by brackets, and adverbial clauses by braces, with conjunctions in boldface. The gapped noun in the data is shown by Ø. The abbreviation MOD stands for modifying ending.

(3) [Ø mok-eyse ppaynay-n] ket
throat-from pull.out-past.MOD thing
'the object [that (he) pulled out of the throat]'

Compare the discourse initial sentence of *The Three Little Pigs* in English and in Korean. In English, there is a relative clause (*Once upon a time there was a mother pig* [*who had three little pigs*]), but the Korean counterpart is not likely to have an RC, because then the three little pigs in the RC would be introduced before the mother pig. The children are not usually introduced before their mother in children's stories even though in this story the mother pig disappears from the stage quickly. Instead, a coordinate NP is used to introduce participants who are related, as in (4) from a Korean story and (5) for the story of the little pigs (cf. Hwang 1990).

(4) hol emeni-wa atul ttal ilekhey
lone mother-and son daughter like.this
sey sikkwu-ka sal-ko.iss-ess-upnita.
three family.member-NOM lived
'There lived a family of three, a widowed mother, a son, and a daughter.'

(5) emma twayci-wa aki twayci se mali-ka
mommy pig-and baby pig three classifier-NOM
sal-ko.iss-ess-upnita.
lived
'There lived a mother pig and three little pigs.'

The postnominal position of the English RC allows it to carry information temporally or logically sequential to that encoded in the main clause. These are necessarily nonrestrictive RCs, giving additional asserted information.

(6) Slowly he walked along the aisle and up the steps to the choir, [where he handed the plate to the priest, [who blessed the gifts and then reverently placed them on the altar]].

The two relative clauses in (6), taken from the Hans story (Gee 1955:107), clearly describe subsequent actions. If the sentence were given with RCs in Korean, the RCs in prenominal position would reverse the order of events and make a nonsensical sentence. The order of information flow needs to be kept the same in translation to make a coherent sentence in this case. So, in Korean, instead of an RC, we need to use a sentence with a clause chain. In (7) is an example from an expository discourse (Pike 1982:3) with logically subsequent information in the RC (e.g., reason-result, means-purpose, and condition-consequence); note the second RC.

(7) The list and kind of things [men find] will vary radically if they adopt different theories as tools [with which to search for these units].

In the context of the sentence, they adopt different theories as tools and search for these units. Examples of this kind of RC in English are expressed as a clause chain in Korean, such as 'adopt different theories as tools and search for the units' (means-purpose).

Another difference results in frequency counts of the head noun between the two languages. In English, the head noun of the RC is the subject of the main clause only half as many times as it is the object (Fox and Thompson 1990:307):

S head : O head = 1 : 2

An RC modifying a subject interrupts the flow before the verb in SVO clause order, while an RC can modify the object (or the existential subject, predicate nominal, or oblique) without interruption. Sometimes a long RC occurs at the end of a sentence, even extraposed or right dislocated. The postnominal RC in English allows us to have long RCs at the end of sentences. In fact, right dislocation is a preferred structure in English in order to avoid interruption within the main clause. Notice that in (8c) the RC at the end of the sentence is extraposed and right dislocated. Since the head noun is the subject, *decisions*, the RC would make the subject quite far from the verb if it were not extraposed.

(8) a. So he married a grand lady [who had two daughters of her own, and who, he thought, would be kind and good to his little one].
b. The most effective writers may be those [who are intuitively sensitive to the constraints of thought and language flow].
c. Every day decisions are being made by local officials in our communities [that could drastically affect the quality of our lives].

In Korean and Japanese, the frequency ratio is roughly the same for the S head and the O head, both of which occur before the main clause verb.

S head : O head = 1 : 1

While one might think that the O head with an RC might be interruptive, the arguments (S or O) in both Korean and Japanese are frequently deleted when they are accessible in discourse context. Long RCs often appear at the beginning of a sentence, and the argument with the RC may be left dislocated, sometimes changing the word order of the clause to be OSV, as in (9), to avoid having a long constituent in the middle of the sentence.

Thus, in Korean and Japanese, with prenominal RCs, long RCs occur at the beginning of sentences. Such left dislocation of lengthy constituents in Korean and Japanese is for the same purpose as right dislocation in English: both are to avoid interruption of the main clause. The Korean sentence in (9) starts with a long RC modifying the object, with OSV order.[4]

(9) ‘[Silently at the edge of the yard as such still standing] [old] father and [young] child, only the flowing moonlight unusually was stroking.’ (‘Only the flowing moonlight was strangely bathing the old father and the young child [who were still standing silently at the edge of the yard].’)

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[4] For the sake of brevity, only literal translations in English (in single quotes) are given for some Korean or Japanese data, instead of the complete data. Adjectives are marked in brackets when they are syntactically RCs, which is the case for most Korean adjectives.

The Japanese sentence in (10) (from Collier-Sanuki 1993:61) also starts with a long RC, modifying 'I', a personal pronoun.[5]

(10) 'Because it is I, [who had never drawn anything other than pictures of boas from the inside and boas from the outside due to the fact that I was made by the grown-ups to give up on pursuing my painter's career when I was six years old].'

Common functions of RCs in both English and Korean are: (1) background information (which is often new information) about the head noun, as in 'a person who is blind (=a blind person)'; (2) cohesion in discourse, summarizing or referring to earlier events and foreshadowing what will come later; and (3) minor or displaced events, as in a grand ball to which the prince invited all the people (from the English story Cinderella).

Beyond these common functions, RCs in English introduce participants who are related to the head noun, report subsequent events (temporally or logically), and add asserted information at the end of the sentence, sometimes, right dislocated. Due to sentence-final focus in English, often the information in RCs is more important than that in the main clause when there is no special intonation or focus particle like *even*. This is shown in examples (8b) and (8c) above.

Korean RCs have three different functions: (1) to provide an abstract theme or teaching, as in 'mommy and daddy magpies, [who sacrificed their precious lives to return their favor]'; (2) to add long RCs preceding the head noun at the sentence-initial position; and (3) to back-reference by starting the sentence with an RC (tail-head linkage). This function of referring to the previous sentence is usually handled by preposed adverbial clauses in both English and Korean. Prenominal RCs can also serve this function in Korean, since the sentence starts with the RC, not with the head noun, as in English. Back-referencing in an adverbial clause normally has zero reference to the subject, but it will be explicit in an RC as its head.

2.2. ADVERBIAL CLAUSES. Adverbial clauses are those that modify another clause 'in a way similar to the way in which an adverb modifies a proposition' (Thompson, Longacre, & Hwang 2007:237). Most, if not all, languages have preposed adverbial clauses, which are crucial in text organization, showing discourse movement, and inter- and intra-paragraph cohesion. Postposed adverbial clauses in strongly head-final languages, however, may not occur or are limited in distribution (e.g., only in oral conversational style). Since the main clause is the head of the sentence, in head-final languages the sentence ends with the main clause, not with any subordinate or adverbial clause.

In head-initial languages like English an adverbial clause may come before or after a main clause, as in (11):

(11) a. {**When** you picked me up,} you knew what I was.
b. You knew what I was {**when** you picked me up}.

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[5] The head noun in Japanese and Korean may be a singular pronoun, a phenomenon rare in many languages including English (Dixon 1994:222).

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Is there any functional difference between the two positions? In (12), the sentence is shown in the context of discourse (Cody 1988:32-33), and the adverbial clause is postposed.

(12) a. The youth resisted a while, but this was a very persuasive snake with beautiful markings.
b. At last the youth tucked it under his shirt and carried it down to the valley.
c. There he laid it gently on the grass, {**when** suddenly the snake coiled, rattled and leapt, biting him on the leg}.
d. "But you promised . . ." cried the youth.
e. "You knew what I was {**when** you picked me up}," said the snake as it slithered away.

The *when* clause in (12e) encodes information relating only to the main clause rather than contributing to discourse organization or movement across sentences. If the other order were used in this context, the temporal clause would be interpreted as setting the stage for the main clause. Compare it with (13) below, which has a preposed *when* clause, setting the stage for the main clause (Gee 1955:191).

(13) … {**when** I caught sight of you from the window this afternoon} I daren't open the door {**because** I thought you'd come for the rent}.

The postposed *because* clause provides the reason for the main clause, within the overall setting established by the *when* clause. Preposed clauses tend to have an orienting or cohesive function linking larger constituents like sentences and paragraphs, while postposed clauses provide information of a narrower scope relating to its main clause only. Some previous studies have noted similar functional differences of adverbial clauses by position in English, e.g., Givón (1987, 1989, 1990), Thompson (1985, for purpose clauses), Hwang (1994b), and Thompson, Longacre, & Hwang (2007).

But what about the *when* clause in (12c), which is preceded by a comma? It is in fact this *when* clause that reports a highly significant event, the biting of the snake, information more significant than that in the main clause. It is skillfully placed in the postposed clause as a surprising, dramatic happening after the placid main clause reporting an expected action by the youth (*laid it*), which is sequential to the previous sentence in (12b). It is so surprising an action that not only is there a punctiliar adverb *suddenly* but also the reference form to the snake shifting from *it* (in the main clause) to *the snake* (in the following postposed clause).

That *when* clause may not be preposed since it results in a nonsensical sentence with the events reversed in order (*'{When suddenly the snake coiled, rattled and leapt, biting him on the leg}, there he laid it gently on the grass'). If we prepose the *when* clause to keep the temporal order right and reverse the status of main and adverbial clause, the surprise effect would be reduced ('{When there he laid it gently on the grass}, suddenly the snake coiled, ...').

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A similar example occurs in the Hans story (Gee 1955:106-07) when he agonizes over not having any money at the offering time; he only has an apple which he had received from a girl earlier.

(14) What was he to do? Others were giving money—he could hear it. He had nothing … nothing to give God except his apple, and he could not give *that*. He dare not. What would all the people say? What would the man in the fine clothes say—the one standing on the steps amid all the bright candles at the far end? And wouldn't God be angry, too? It seemed to Hans as if all eyes were fixed on him {**when**, in an agony of fear, he timidly placed the red apple on the plate}.

The postposed *when* clause again encodes a surprising event after the main clause, which continues the internal thoughts of Hans. This event is foreground information; in fact, it is the most significant event in the story.

We propose that such postposed clauses function to create a dramatic surprise effect by hiding a significant event in the postposed clause after the non-eventful information in the main clause and to convey globally crucial information and mark a turning point or peak in some texts (cf. Thompson, Longacre, & Hwang 2007).

The functions of preposed clauses are similar in English and Korean although the two languages are typologically very different, so these similarities in function probably apply to most languages. But how can we reflect the functional difference between preposed and postposed adverbial clauses in a language in which there is no choice of the alternative position? We propose that there are several devices in Korean that serve equivalent functions to postposed clauses in English. The first two involve adverbial clauses in Korean, too, but the third one uses a different structure.

In Korean, the adverbial clause (which would be postposed in English) may be inserted after the main clause subject, as in (15) and (16). In that position, the clause is now inside the main clause, certainly creating the more-integrated effect equivalent to the English postposed clause. The main clause subject is marked by the topic particle *nun* so that it can apply to the whole sentence, hopping over the inserted adverbial clause. If it were marked by *ka*, the nominative particle, it would be understood to be within the scope of the adverbial clause in both examples, thereby requiring that the clause be preposed to the main clause.[6]

(15)	ne-nun	{na-lul	cipess-**ul.ttay**}	nay-ka	muessinci	alatta.
	you-TOP	I-ACC	picked.up-**when**	I-NOM	what.is	knew

'You, {when (you) picked me up,} knew what I was.'

---

[6] The general rule for the use of the particles is *ka* for new information and *nun* for old information. One of the several sub-rules to account for exceptions is that the subject of subordinate clauses (adverbial and embedded clauses) is marked by *ka* regardless of its information status (Hwang 1987:129-131). This sub-rule would trigger the interpretation of 'you' or 'theory' in (15) and (16) as the subject of the adverbial clause if they were marked by *ka*. It is, however, more natural and common for the same subject to occur with the main clause after zero anaphora in the adverbial clause when they are identical in the two clauses: '{Ø me picked.up-**when**,} you knew what I was'. *ka* in (17) clearly marks *Shim Chung* as the subject of the inserted adverbial clause although, as the central participant, she is old information.

(16) ilon-un {towum-i twey-lye-myen} hyensil-pota
theory-TOP help-NOM become-to-if reality-than
kantan.hay-ya.hanta.
be.simple-must
'A theory, {**if** it is to be helpful,} must be simpler than reality.'

Example (17) comes from the story about Shim Chung and her father Shim Bongsa. After the main clause subject, marked by *nun*, a sizable adverbial clause is inserted before the rest of the main clause, which starts with 'finally', is resumed.

(17) Sim Pongsa-nun, {Sim Chengi-ka payt salam-tul-ul ttala
Shim Bongsa-TOP Shim Chung-NOM sea person-PL-ACC follow
cip-ul ttena-**l.ttay-ey**-ya,} pilose cwukum-uy kil-lo
house-ACC leave-when-at-only finally death-GEN way-to
ttenanta-nun kes-ul alkey.toyessupnita.
leave-MOD fact-ACC came.to.know
'Shim Bongsa, {**when** Shim Chung was leaving home with the seamen,} finally realized that (she) was going to die.'

The dramatic use of postposed adverbial clauses in English, as illustrated in (12c) and (14), does not follow the normal coding pattern of having supportive or background information in subordinate clauses and mainline or foreground information in main clauses (Labov 1972, Givón 1990). It is exactly because of this type of general rule that the dramatic effect is created, since the rule is skillfully broken and skewed.

The second type of functional equivalence in Korean applies to such dramatic cases, where the main clause becomes an adverbial clause and vice versa. We may have an analogous function of this type of surprise simply by reversing the status of the main and adverbial clauses. The postpositional conjunction in Korean is attached to the end of the verb (and clause), 'there (he) gently (it) laid-**when**', which does not give the orienting or setting feeling that English *when* would at the beginning of the sentence. The dramatic effect of surprise may not be as strongly expressed as in the English postposed clause, but the surprising information can still occur in the main clause in Korean, with 'suddenly' and the explicit reference to 'the snake' after the zero reference to it in the adverbial clause: '{There gently **Ø** laid-**when**}, suddenly **the snake** coiled, rattled, and leapt ...'.

The third type of functional equivalence in Korean is to use an equational sentence, as in (18), which links two clauses together with a linking verb. Compare, for example, an English equational sentence ***The fact*** *that he couldn't come* ***was because*** *there was an accident* with *He couldn't come* {***because*** *there was an accident}*.

(18) kulena nay-ka te nollan kes-un nelpun kangtang-ul
but I-NOM more surprised fact-TOP wide auditorium-ACC
twiepnun tut.han ku hwanyeng **ttaymun** **ita**.
overthrowing seem that reception reason is
'But **the fact** that I was more surprised **is because** of the reaction which is sweeping through the wide auditorium.' (The tenses here reflect the Korean example.)

In 1 John in the New Testament, there are three verses (2:12-14) with postposed clauses. The first two sentences appear in (19) in English, which reflect the same clause order from the source language, Koine Greek, which is also a head-initial language.

(19) I write to you, dear children, {**because** your sins have been forgiven on account of his name.}
I write to you, fathers, {**because** you have known him who is from the beginning.}

This pattern is problematic in Korean because of the postposed clauses. We compare different Korean versions to see what the functional equivalents might be for the first verse, 1 John 2:12.

(20) a. 'Dear children, (**the fact**) that I write to you **is** that your sins are forgiven for his sake.'
b. 'Dear children, **the reason** I write to you **is because** your sins are forgiven for his sake.'
c. 'Dear children, {**because** your sins are forgiven for his sake}, I write to you.'

The first one, (20a), uses an equational sentence, and is from an older style in the earliest version. The sentence in (20b), from a later translation, also uses an equational sentence, in which the reason is made explicit and focused. In (20c), the reason clause is preposed. Although it fits the head-final pattern, the focused assertion is the main clause 'I write to you'. This seems to be odd, especially when it is actually repeated six times in a row in this passage. The first two translations focus on the reason, and they use not an adverbial clause but an equational sentence.

Frequently, the clause that is postposed in English occurs in a new sentence in Korean, with each clause making its own assertion.

(21) a. sunim-un tanghwang.haytta.
monk-TOP was.embarrassed
'The monk was embarrassed.'
b. suto-ha-nun mom-ulo kyelhon.hal.swu-ka
asceticism-do-PRES.MOD body-as can.marry-NOM
ep-ki **ttaymun** **ita**.
not.exist-NOMZ reason is.
'(It) **is because** (he) cannot marry (her) as a person who practices asceticism.'

Sometimes the second sentence starts with *ku kkatalk-un* ('the reason-TOPIC') or *way-nya ha-myen* ('why-QUESTION do-if'), which explicitly connects it to the previous sentence as its reason. Pairs of sentences of this type, thesis and reason, occur frequently in natural texts. The next example set provides the reason in the second sentence without using the word like 'reason' or 'because'. Note that the earliest translation version in (20a) similarly includes no word of that type.

(22) a.

noin-un	kuman	te	chukungha-l	yongki-ka	epsetta.
old.man-TOP	at that	more	press-FUT.MOD	courage-NOM	not existed

‘The old man did not have the courage to press anymore.’

b.

Kwen	sepang	po-ki-ka	pukkulewetten	kes	ita.
Kwon	Mr.	see-NOMZ-NOM	ashamed	fact	is

‘**The fact is** that (he) was ashamed to look at Mr. Kwon.’

In the Korean story called “The Beauty and the Monk”, such a pairing of sentences occurs three times in a row in the peak episode, given here with a literal translation in English in (23). (The Korean data for e and f are shown above in (21))

(23) a. ‘The monk advised the woman to go to Seoul immediately.’
b. ‘(It) **is because** (people) at home would be worried that (she) must have died, being captured and taken by a tiger.’
c. ‘However, the girl refused to do so.’
d. ‘**The fact is** that (she) wants to spend (her) life together with the monk who saved her life.’
e. ‘The monk was embarrassed.’
f. ‘(It) **is because** (he) cannot marry (her) as a person who practices asceticism.’

After hearing how the monk revives the girl brought in by a tiger, we hear the reason for each action, not in the same sentence but in separate sentences. Also note that these sentences giving reasons are in the present tense (instead of the usual past tense), further supporting the inference that the section is the peak episode with grammatical turbulence.

3. Rhetorical styles in sentence and paragraph: inductive versus deductive. Head-initial and head-final features are related to different rhetorical styles in argumentation or logical reasoning in which the head may be the conclusion or thesis statement based on supporting statements. Thus it is likely that the thesis occurs first in head-initial languages, thereby resulting in a deductive reasoning style. Likewise, it is likely that the thesis comes last in head-final languages, resulting in an inductive reasoning style. As seen above in the section on adverbial clauses, main clauses occur at the end of the sentence in Korean in an inductive style. Thus the translation of a postposed reason clause must adjust to one of the three functionally equivalent ways to maintain the strong head-final feature of Korean. In all three, the sentence ends in the main clause.

It has been noted, however, that the use of the equational construction may actually stretch over two sentences, as shown in (21)-(23). These examples show that the constraint on having the thesis last is not a necessary or strongly-held restriction across sentence boundaries. That is, we may have the thesis in the first sentence, followed by the supporting arguments such as the reason or evidence in the following sentences. It is true that the supporting sentence may take a slightly marked form reflective of the second part/clause of an equational sentence, with the expressions like ‘the reason is …’ or ‘that is the reason…’

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For Amele, a Papuan language with head-final features which are opposite to New Testament Greek structures at both the syntactic and discourse levels, Roberts (1997) proposes that some clauses and verses in Bible translation must be reordered to fit the inductive style of Amele. Similarly, Levinsohn (2006) addresses the problem of having a deductive style in translated material in head-final languages, which goes against the usual presentation order in such languages. Example (24) comes from Exodus 20:7, which has the thesis-supportive order[7] (the prominent sentence label is in small caps as in Levinsohn 2006:7).

(24) 7a Thesis: ‘You shall not misuse the name of the Lord your God.’
7b Supportive: ‘For the Lord will not hold anyone guiltless who misuses his name.’

When the sentences are given in this order, he is worried that naïve readers in OV languages may misinterpret it, e.g., (7a) as the thesis for the preceding material, rather than for (7b). One option he proposes is to add expressions like ‘the reason is’, which, however, may also lead to misinterpretation by treating the supportive information in (7b) as prominent due to the marked expression.

(25) 7a Thesis: ‘You shall not misuse the name of the Lord your God.’
7b Supportive: ‘**The reason is** the Lord will not hold anyone guiltless who misuses his name.’

He suggests another option, a cyclic (or inclusio) structure that repeats the thesis at the end. Then it will be clear which sentence is the thesis.

(26) 7a thesis: ‘You shall not misuse the name of the Lord your God.’
7b Supportive: ‘**The reason is** the Lord will not hold anyone guiltless who misuses his name.’
7a thesis': ‘So you shall not misuse his name.’

In the three Korean translations I checked, the original order of thesis-supportive is kept with no modification. In this case, I believe (7a) is clearly the thesis, being in the imperative mode in the context of the Ten Commandments, and (7b) with its future tense is supportive information. Again, deductive order can be used in logical arguments in Korean, although the language is strongly head final, and it presents little problem here, since the status of the thesis is clearly marked by the modal form.

In the book of Amos in the Bible, a deductive pattern occurs seven times from 1:3 to 2:4 within sentence boundaries. In the New American Standard Bible, verse 3 has *For three transgressions of Damascus and for four I will not revoke its punishment,* {***because*** *they threshed Gilead with implements of sharp iron*}, and v. 4 begins with: *So I will send fire upon the house of Hazael…*

In the same three Korean translations, an equational sentence is used: ‘I will not turn back my wrath … **this is** …. **because**.’ Thus the information flow is the same as the deductive order, with the grammatical structure modified. While Roberts considers this type of modification to be quite unusual, giving undue prominence to the reason, it is frequent in Korean in naturally occurring texts as well as in the Bible. In most of these cases, the slight prominence of the reason may not be unwarranted.

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[7] Biblical Hebrew is a strongly head-initial language with the basic word order VSO (Longacre 1995).

Keyes (2001) has examined rhetorical styles of hortatory texts in Qazaq, a Turkic language with SOV word order. He found that the ordering of rhetorical relations correlates primarily with pragmatic function rather than with word order. While Qazaq tends to use a quasi-inductive approach, he states that the inductive order of the supportive-thesis correlates only at the inter-clausal level within the sentence. It is noteworthy that his observations on Qazaq rhetorical styles are similar to what I have observed in Korean texts. It may be that Papuan languages (as discussed in Roberts) display a more strict inductive style at both inter-clausal and inter-sentential levels, while deductive order is more tolerated in Korean and Qazaq at the inter-sentential level.

By way of conclusion, we may return to the three types of questions that were mentioned at the beginning of this paper. *How* questions deal with structural issues (*how* are they constructed), *what* questions relate to cross-linguistic categorization and comparison (*what* are they), and *why* questions relate to functional issues (*why* are they used in texts). Certainly, these questions are tied together, and for a thorough study of a language, all three types of questions need to be asked and addressed.

Discourse structure is closely tied to the grammar of a language. Grammatical differences across languages are relatively well known, but differences in discourse structure across languages are less well recognized. Discourse analysis may provide wings to linguists to better understand morphosyntax, e.g., how variations in tense, aspect, and modality are tied to their discourse functions.

Head-initial and head-final languages can use different grammatical constructions to keep information flow right for the discourse context. Grammatical constructions, like relative clauses and adverbial clauses, and rhetorical styles have been discussed in this paper with examples from English and Korean as representative samples from head-initial and head-final languages.

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II

Syntax

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PROGRESSIVE AND HABITUAL ASPECT IN C’LELA OF NORTHWEST NIGERIA

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Abstract. This study describes the structure of the verb phrase used for two categories of imperfective aspect in C’lela, a West Kainji language of northwest Nigeria. C’lela shows progressive aspect using the metaphor of location in conjunction with verbal nouns marked according to the noun class system. The main verb in the progressive verbal phrase is the same stative copula that is used in any locative statement. Habitual aspect in C’lela is also described, with examples drawn from a variety of texts. The stative copula is optional and the verb expressing habitual action is not nominalized as it is for the progressive aspect. With either category of imperfective, the time interpretation of clauses is established in the context. Use of texts in studying the interaction of tense and aspect is thus shown to be crucial.

Keywords: Aspect, Text, Context, Habitual, Imperfective, Progressive, Tense, Kainji, Nigeria

Languages: C’lela (Dakarkari), English, Cishingini, Hun-Saare (Dukanci), Yoruba, Igbo, Kpelle, Shona, Swahili, Akoose, Kisi

C'lela is a language of the west Kainji subgroup, which belongs to the Benue-Congo family of the Benue-Congo language phylum. This paper explores the linguistic resources used by C’lela to convey two common subcategories of the imperfective aspect, namely progressive and habitual.

The author worked for over ten years with some of the peoples and languages of Kebbi and Niger States in northwest Nigeria. This work focused initially on a sociolinguistic survey of eight West Kainji languages (1991-93), then on a more detailed analysis of C’lela (phonetically [t͡ʃəlélà]) for the purposes of language development and Bible translation (1995-2005).

Map 1 (following page) shows the geographic location[1] of the West Kainji subgroup. West Kainji languages have active noun class systems and their verbal systems are interesting to compare with those of other Benue-Congo subgroups, including the well-studied Bantu languages. The map also clarifies the extent of overlap in northern Nigeria among the numerous subgroups of the Benue-Congo and Chadic language families.

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[1] The location of these languages in northwestern Nigeria is indicated on Map 1 by the white rectangle around the name West Kainji. Two smaller rectangles indicate the locations of the East Kainji and Plateau languages. These are the subgroups of Benue-Congo most closely related to West Kainji. Roger Blench (p.c. 2011) feels the division between East Kainji and West Kainji is based more on geography than on linguistics.

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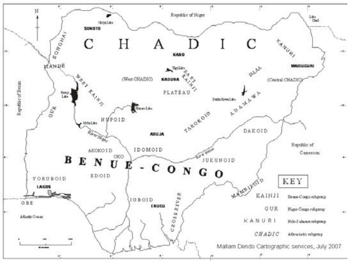

Map 1. Benue-Congo subgroups and Chadic subgroups in Nigeria (Blench 2007:Slide 3).

Appendix 1 gives information on all C'lela texts from which examples are cited in this paper. Appendix 2 gives the glossing abbreviations used and Appendix 3 gives the conventions followed when representing the phonemes of C'lela in examples.

1. Studying imperfective aspect. Comrie (1976:24-25) gives the general semantic characterization of imperfectivity as "explicit reference to the internal temporal structure of a situation, viewing a situation from within." Many languages have "a single category to express imperfectivity", but in others "imperfectivity is subdivided into a number of distinct categories."

This paper contends that C'lela is a language of the latter type, with clear grammatical distinction between two categories of the imperfective, progressive and habitual.

1.1. The insufficiency of elicited data. In writing about verbal constructions, Welmers (1973:344-45) cautions those beginning to research the verbal predications of a Niger-Congo language. Naive elicitation, he warns, will likely proceed with the assumption that African languages have a simple present tense matching that of English. But when one's language tutor gives an "alleged equivalent" to the statement 'I build a house', what does that equivalent mean? The two strongest contenders for the English gloss are 'I am building a house' (progressive) or 'I build houses' (customary). Welmers (1973:345) says the elicitor must distinguish between these two meanings "since many African languages have quite distinct constructions to indicate customary and present continuing action".

The author's old field research notes many times display this kind of naive assumption concerning C'lela verbs. This study proceeds from the premise that initial glosses of elicited data should not be given too much weight in grammatical analysis.[2] An understanding of elicited data, particularly for verbal constructions, should be shaped by observations of those constructions in the context of natural text.

1.2. The power of natural text. Realizations of imperfective aspect are not as abundant in natural text as examples of perfective aspect are. In narratives, progressive and habitual aspect are usually found off the main line of events, in such nonevent material as participant orientation, setting and explanation (Dooley & Levinsohn 2001:81). The content of reported speech in a narrative is also fruitful ground for examples of imperfective, since such content is also “a type of nonevent” (83).

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[2] Of course there are methods more suitable to eliciting data than asking a bilingual language consultant to translate sentences from English. For example, one could outline a situation involving progressive action and ask how the consultant would describe it in the language. The author does not wish to imply that all elicited data is bad.

Exploration of expository texts often furnishes a wealth of descriptive statements, which may employ the grammatical resources of the language for conveying imperfective aspect. Natural text has the considerable advantage over elicited data of providing a complete context for the verbal constructions being studied. According to Dooley & Levinsohn (2001:51), the composer of a text constructs a mental representation of whatever their discourse is about. The audience of the discourse must then use expectation structures to arrive at an understanding of the composer's mental representation. These expectation structures arise from “two principal sources: experience (either personal or collective, which we call culture) and … the text itself” (2000:52). Thus, there are many elements assumed by the audience of a text to be part of the context of any statement in the text.

We predict that we will frequently rely on context as a check on the semantics of progressive and habitual aspects. This should keep us from reading into verbal constructions something we expect to find there which may actually be carried by the context.

2. PROGRESSIVE ASPECT IN C'LELA. Comrie (1976:38) states as a “general linguistic definition” that progressivity is “the combination of continuous meaning and non-stativity.” Verbs in a language tend to divide into two disjoint classes, stative verbs and nonstative verbs, with respect to the question of whether they have a progressive form. Stative verbs (such as ‘want’, ‘be tall’, ‘know’) do not have progressive forms “since this would involve an internal contradiction between the stativity of the verb and the nonstativity essential to the progressive” (35). From the standpoint of cognitive grammar, Taylor (2002:404) agrees with Comrie: “The reason … why the progressive is unacceptable with truly stative situations is that the progressive and ‘true’ stativity are conceptually incompatible.”

Comrie demonstrates that different languages give different answers to the question of whether to view raining, seeing, hearing, thinking, etc. as states or as dynamic situations (1976:35). Thus it is helpful to learn for any given language which verbs can be marked as progressive in the grammar of the language, and which cannot. This is essentially a conceptual decision and not a linguistic one.

2.1. EXAMPLES FROM RESEARCH NOTES. Elicited examples, though devoid of a context, are useful for displaying the usual syntactic structure for clauses in progressive aspect in C'lela. The examples of (1) are drawn from the author's field research notes.[3]

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[3] All data in this paper is presented phonemically, except that epenthetic schwa is also shown where required by C'lela syllabification rules (cf. Appendix 2). Abbreviations used for the grammatical meaning of morphemes are also listed in Appendix 2. Less common abbreviations are footnoted at their first occurrence in the paper.

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(1) Elicited examples – intransitive verbs, progressive aspect[4]

a. u el-ə́n s-kán.
3s be-PROG PL.NC[5]-cry.out
‘S/he is crying out.’

b. u el-ə́n c-waago.
3s be-PROG PL.NC-sweeping
‘S/he is sweeping.’

c. u el-ə́n d-hwerâ.
3s be-PROG PL.NC-resting
‘S/he is resting.’

d. u el nə́-m-ləvə.
3s be-PROG MS[6].NC-sleeping
‘S/he is sleeping.’

e. u el n-á-yomko.
3s be-PROG SG.NC-working
‘S/he is working.’

To show progressive aspect in C’lela, the strategy is periphrasis rather than inflection on the verb. The verbal phrase starts with the copula *el*, followed by the particle *n* (augmented by epenthetic schwa as needed for pronunciation). The final element in the verbal phrase is a verbal noun which conveys the action as being in progress. The particle should not be seen as an inflectional suffix on the copula; it can be linked with the coda of the copula or with the noun class marker, depending on normal syllabification processes. In the examples so far, a high tone is linked to the syllable into which the particle is incorporated.

The elicited examples of (2) show that Yes-No questions with the progressive aspect employ a copulative element *lá*, glossed ‘be?’, which may be a suppletive allomorph of *el*. There are also other copulative elements used to convey negation (*za*), conditionality (*wa*), prior time (*la)*, and subordination (*re)*.[7]

(2) Elicited examples – progressive aspect in Yes-No questions[8]

a. u lá-ən s-kân?
3s be?-PROG PL.NC-cry.out\Q (cf. (1a))
‘Is s/he crying out?’

b. u lá-ən c-waagê?
3s be?-PROG PL.NC-sweep\Q (cf. (1b))
‘Is s/he sweeping?’

c. u lá-ən d-hwerâ?
3s be?-PROG PL.NC-rest\Q (cf. (1c))
‘Is s/he resting?’

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[4] (Dettweiler 2000:25)

[5] NC = noun class marker

[6] MS = mass/noncount noun, distinct from Plural

[7] Examples of all these can be found in C’lela texts, but space to present examples for all is lacking.

[8] (Dettweiler 2000:64)

d. u   lá   nə-m-ləvî?
3s   be?-PROG   PL.NC-sleep\Q   (cf. (1d))
'Is s/he sleeping?'

e. u   lá   n-ayomkê?
3s   be?-PROG   PL.NC-work\Q   (cf. (1e))
'Is s/he working?'

The order of the periphrastic construction in the examples of (2) is identical to the order in the corresponding examples of (1). The three differences that characterize the Yes-No interrogative are the change in form of the copula, the association of high tone with the copula instead of with the *n* particle, and the change of vowel quality and tone on the final vowel of the clause, at least for examples (2b), (2d), and (2e).[9] With regard to the second difference, there is evidence that the initial high tone should be considered as a grammatical tone rather than as a lexical tone associated with either the copula or the particle.

It may be noted that all examples in (1) and (2) involve intransitive verbs. Set (3) of elicited examples illustrates how the direct objects of transitive verbs are included in the verbal phrase.

(3) Elicited examples–transitive verbs, progressive aspect[10]

a. u   el-ə́n   waag-mə   d-baa.   (16)
3s   be-PROG   sweep-MS.NC   SG.NC-place   (cf. (1b))
'S/he is sweeping a place.'

b. u   el-ə́n   guz-mə-n   kus-í   ri.   (16)
3s   be-PROG   wash-MS.NC-of   shirt-SG.NC   1s.POSS
'S/he is washing my shirt.'

c. c   el-ə́n   bɔm-c   róvo.
1P-EXCL   be-PROG   praise-PL.NC   2SPOSS   (57)
'We are praising you.'

d. u   lá-ə̀n   goo-də-n   φ-híì?
3s   be?-PROG   SOW-SG.NC-of   PL.NC-sorghum   (64)
'Is s/he planting sorghum?'

The syntactic pattern of the verbal phrase is the same with a transitive action as with an intransitive: copula followed by aspect particle followed by verbal noun. The main difference is that the nominalized form of the transitive verb becomes the head of a noun phrase, with the remaining part of the phrase indicating the recipient of the action expressed in the verbal noun. The kind of noun phrase so formed could be called a genitival or associative construction of the form N_{head} + NP. This genitival construction is widely used in C'lela, with no requirement that the head of the phrase be a verbal noun as it is in the examples of (3). The glue that holds the phrase together in the middle is composed of up to three elements: first, the noun class marker of

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[9] The tone on the final vowel of (2a) and (2c) is phonetically (though not phonemically) different from the tone on the final vowel of (1a) and (1c) respectively. Vowel quality remains the same.

[10] (Dettweiler 2000)

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the head noun (this has been postposed from its usual position as prefix); second, a linking particle *n*, which is present under certain well-defined conditions,[11] as in (3b) and (3d), where it is glossed as 'of'; third, the noun class prefix on the object NP (if such exists and has not been postposed, as in example (3b)).

The noun class marker most common on verbal nouns is *m*-, postposed in (3a) and (3b) as *-mə* where the vowel is epenthetic. This may have semantic significance: *m*- is the marker of mass nouns and a transitive action such as 'sweeping' a place (3a) or 'washing' a shirt may be construed as a mass of action that accomplishes a particular purpose. Verbal nouns have been observed, however, to take a variety of class prefixes other than *m*- , especially when they are nominalized forms of intransitive verbs but even here as nominalizations of transitives (as in (3c) and (3d)). There is good evidence that the class marker used on a verbal noun is semantically significant (cf. iterativity of *s*-, to be discussed in example (7)).

2.2. EXAMPLES FROM TEXTS. Citing Welmers' exposition (1973:345-47) of Yoruba and Igbo imperfective, Comrie (1976:82) says that many West African languages are "tenseless." His meaning, he says, is that "there are no specific markers of past versus present tense, though there are markers of aspect."

The tendency for a linguist who is coming at a Niger-Congo language with the grammar grid of a language like English is to confuse imperfective aspect marking on the verbal phrase for the present tense, and perfective aspect marking on the verb for the past tense. This is not far wrong as a sort of default interpretation of the aspects—that is, speakers of the language are likely themselves to make this interpretation "in the absence of any contextual indication of time reference" (Comrie 1976:82). But "in the presence of an overt indication of time" such as a time adverbial, imperfective forms such as the progressive can be correctly understand as referring to a past period or a future period and perfective forms can equally be correctly understood as referring to present time or even future time (1976:82-83), under the pressure of the appropriate context.

The tenseless nature of C'lela can be demonstrated by turning our attention to how progressive and habitual aspects are used in natural text. The hypothesis is that the same clause we have interpreted as present progressive, 's/he is hoeing'. could equally well mean 's/he was hoeing', given a different time setting. The interpretation of imperfective aspects is straightforward when we pay attention to the time information given in the context of textual examples. For each example, the relevant time information is provided along with a reference to the sentence in which it is given.

(4) Examples from *Farmer* text – progressive aspect, time setting in context

a. u el gɛ́ n-u-gɔvó. (farmer02)
3s be EMPH PROG-SG.NC-hoe
'He was hoeing away.'
(*time adverbial*,'one day', farmer01)

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[11] Having to do with the existence and identity of the third element (see Dettweiler 2008:29-30)

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b. Netá-u-nló, u el n-ə́m-gɔtɔ… ai… (farmer09)
wife-SG.NC-that 3S be PROG-MS.NC-think that
'Concerning his wife, he was thinking that'…
(*point of departure* – 'he had left his wife at home', farmer08)

The statement of (4a) is repeated several times in establishing the setting of the *Farmer* narrative, which stars a hardworking K'Lela farmer. This statement, early in the narrative, points to the farmer's devotion to his work. The mainline action of the narrative concerns how he cleverly handles the interruption to his work threatened by a would-be thief. (4b) also constitutes part of the background information provided before the thief appears on the scene. It explains that one thing on the farmer's mind is that his wife is very soon to deliver a child. This circumstance is later woven into the farmer's strategy to defeat the thief in his intentions.

(5) Examples from *Smith* text – progressive aspect, time setting in context

a. … a el n-á-zɔɔ. (smith04)
3P be PROG-SG.NC-smith
'…they were working in the smithy.'
(*time adverbial* – 'it happened one day', smith04)

b. a el-ə́n pɔɔsɔ-m rû (smith14)
3P be-PROG greet-MS.NC 3S.POSS
'They were greeting her.'
(*prior clauses*–'about to reach their hometown, they came aside', smith13)

Both of these statements describe background action immediately prior to mainline action in the *Smith* narrative. This narrative gives three short vignettes of a well-known but tyrannical blacksmith, told to portray his character. (5a) is from the first vignette and (5b) from the third. In both cases the mainline action (marked by perfective) breaks into the ongoing process described by progressive (imperfective). The time reference is set in both cases by prior context – it is past relative to the time of narration but in the present of the storyline.

(6) Examples from *Modern* text – progressive aspect, time setting in context

a. ak-ə́n el-ə́n kaa-m c-hwén. (modern43)
child-PL.NC be-PROG root-MS.NC PL.NC-day
'The children are forgetting.'
(*time adverbial*- 'in this present age', modern37)

b. na el-ə́n soot … ən ləətə-m c-dɛbɛ. (modern33)
1P.INCL be -PROG sit in lie.down-MS.NC PL.NC-liver
'We were dwelling in peace.'
(*time adverbial*- 'in that time', modern33)

c. ríin-ə́n íyayɛ́-n re-in n-ú-vato (modern19)
thing-that parents-PL.NC be.REL-SUB[12] PROG-SG.NC-say
'what their parents are saying'
(*subject*- 'these children [of the present]', modern17)

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[12] SUB = subordinator

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The dialogue entitled *Modern* is a conversation between husband and wife, who are both of the grandparent generation. They compare standards of social relations in the days of their youth with standards in the present day. In (6a) and (6b) use the same form of the copula, *el*, to refer to the present day and the past respectively. The time distinction is made only by the time adverbial given in both cases in a prior clause. Note that it need not be immediately prior (in (6a) the time adverbial is 6 sentences earlier), since the coherence of the conversation makes it clear that the time setting has not changed. In (6c) we have the *re* copula, which is used (as here) in relative clauses and also in some other subordinate clauses. The time setting of this statement is present, made clear by the use of the deictic 'these' in the subject NP. Like *el*, the *re* copula carries the idea that the period of progressive action includes whatever time the speaker has in focus, whether the genre is narrative or conversation (as here).

It seems that in all three examples of (6), the discourse function of the progressive aspect describes a period of time by generalization. The conversation also gives examples to illustrate these generalizations, which tend to use perfective or habitual aspect.

(7) Example from *Gɔlmɔ* text – progressive aspect, time setting in context

…	na	el-ə́n	bii-s	róvo.	(gɔlmɔ18)
	1P.INCL	be-PROG	beat-PL.NC	2S.POSS	

'…you would be (being) beaten.' / *lit.* 'We would be beating you.'

(*prior two clauses* – 'From the time you entered *gɔlmɔ*, you would spend 28 days…', *gɔlmɔ17*)

The *gɔlmɔ* text is primarily expository (descriptive): the speaker is giving an insider's perspective of how he and his age-mates experienced the Lelna cultural practice called *gɔlmɔ.* There is much comparison with the current practice of the same custom, emphasizing how much degeneration there has been in the quality of the experience. *Gɔlmɔ*, which could be glossed 'bride service', is the system by which traditional Lelna train their young men (approximately 16 to 22 years of age) to prepare them for marriage and responsible participation in traditional society. There is a strong Spartan element to it, as (7) shows in its description of the first month.

In terms of tense and aspect, the key is to ask what time period is in focus for the speaker. He gives this in the prior two clauses. First the inception of the period is described with a subordinate clause, where the verb 'enter' is marked with perfective aspect. Then the duration of the period as 28 days is given in a clause marked for habitual aspect (cf. Section 3). So the time in focus in the speaker's description is primarily the entire first month of *gɔlmɔ,* but secondarily the day on which *gɔlmɔ* began (giving the progressive an element of inceptivity). So indeed the obvious choice is an imperfective aspect, paying attention to the internal time structure of the event – beginning, middle, and end.

The class marker on the verbal noun should be noted. It is the plural marker *-s* rather than the more common mass noun marker *-m.* This adds the notion of iterativity to the action of the nominalized verb example. Iterative action is in focus whenever a verbal noun is used with the *s-* noun class marker. An example with intransitive action is (1a), *u elə́n s-kan* 'he is crying out', which can be used to describe the repeated crowing of a rooster.

It is interesting that the speaker expresses the dynamic process of (7) using progressive rather than habitual (though in a sense both are present by juxtaposition to the preceding clause, which is marked as habitual). The likely implication of using habitual in the exposition here would be that the beatings came regularly, day by day, and thereby characterized this initial period of *gɔlmɔ*. But with the progressive the speaker emphasizes iterativity rather than characteristic regularity. The beatings are seen as a necessary test to pass through for the sake of winning your wife and a place of respect in society, not as an essential characteristic of this first stage of *gɔlmɔ*.

2.3. SUMMARY: C'LELA PROGRESSIVE ASPECT AND THE LOCATION METAPHOR. The most obvious syntactic feature of a clause in the progressive aspect in C'lela is that in every respect it matches a clause that describes the *location* of a given subject. The unmarked order of the locative statement is a subject noun phrase, followed by a copula (frequently *el*), followed by the preposition *n* 'in', followed by the object of the preposition, a noun phrase (Dettweiler 2008:32-34). The examples in (8) illustrate this, with the highlighted portion showing the common clause construction.

(8) Examples – structure of locative statements

a. a el-ə́n lɛ́-i utu (Dettweiler 2000:167)
3P be-in hometown-SG.NC old
SBJ V_{cop}PREP[13] NP
'They are/were in an old hometown.'

b. u zá n-a-is dá. (Dettweiler 2000:167)
3s be.not in-SG.NC-outside NEG
SBJ V_{cop} PREP-N NEG
'S/he is not outside.'

c. á waa wántá wa n-ú-buu, (modern26)
if child girl be.COND in-SG.NC-compound
CONJ[14] SBJ V_{cop} PREP-N
'If a girl is in the household, …'

This close link between a clause expressing action in progress and a clause describing location is quite widespread in the world's languages. Comrie (1976:98-101) cites a number of languages "belonging to various genetic and geographical groupings" which show marked similarity "between the formal expression of imperfective aspect, especially progressive aspect, and various locative adverbial phrases." With data drawn from Welmers (1973), he shows that Yoruba, Igbo, Kpelle, and Shona have "locative expressions of progressive aspect" with, however, some "differences of detail between progressive and locative constructions" (Comrie 1976:101-102) . Clearly, C'lela can be added to the long list of languages which take this route for formal expression of the progressive aspect. The author's perusal of a few texts in Dukanci (Heath & Heath 2002) and Cishingini (Crozier 1984:280-319) have yielded examples of this type of progressive in those West Kainji languages also.[15] In choosing the location metaphor to indicate the containment of the main action within the background action, C'lela resembles Hausa and many other languages both African and otherwise.

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[13] PREP = preposition

[14] CONJ = conjunction

It is of interest to compare the form of C'lela verbal phrases with that of Bantu languages. Mutaka & Tamanji (2000:186) state that the imperfective aspect of "highly inflectional languages" such as Swahili and Akoose (of Cameroon) is marked by a verbal inflection. They further show an example of the Akoose progressive suffix in verb-final position. The C'lela use of a free morpheme (the copula) and a nominalized form of the verb is quite different from standard Bantu practice, employing syntax rather than verbal morphology. C'lela, using the widespread metaphor of viewing progressive action as analogous to spatial location, is able to exploit its still robust noun class system to include nuances such as iterativity within the progressive, as in example (7).

3. Habitual aspect in C'lela. Comrie (1976:27-28), in exploring the characteristics of habitual action cross-linguistically, points out that mere repetition of action (iterativity) is not enough. The conclusion of his exploration is that "all habituals, whether or not they are also iterative, … describe a situation which is characteristic of an extended period of time."

Taylor says that a process is "construed as habitual … when [it] … occurs at more or less regular intervals over an unspecified period of time" (2002:403). He further contends that habits are presented as "static and unchanging", with a "stative character" (2002:403-404).

These, then, are the clues we seek in textual context to help in deciding whether a verbal construction, however marked, is meant to describe a habitual situation.

3.1. Full construction. As was the case for progressive aspect, the habitual aspect is shown in a periphrastic construction, not by inflection on the verb. The full construction is introduced with the same stative copula *el* (or other copulative element) that is used in progressive aspect. However, this is not a mandatory part of the construction and is not commonly included in clauses with habitual aspect. In example set (9), the seemingly optional component is shaded, and for each example we ask whether the presence of the stative verb fulfills a discourse function.

Two things have been observed as essential to marking habitual aspect in C'lela. One is the distinctive form of the subject pronoun, which is the usual subject pronoun (used for all other aspects) plus (in most cases) a *t-* prefix.[16] This pronoun is mandatorily present before the verb. The second mark of habitual aspect is tonal – a high tone on the pronoun which sometimes spreads to the first syllable of the verb.

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[15] We are not claiming, though, that these languages have only this means of expressing the progressive. Crozier presents inflection on the verb as the main Cishingini strategy of showing progressive, though mentioning "nominalisations" also (1984:163-164).

[16] The exceptions are the first person plural pronouns: the habitual form of *na* (1p.INCL) is *nan* and a free variant of the habitual form of *c* (1p.EXCL) is *cən* (*təc* being the other variant).

(9) Text examples – habitual aspect, full construction

a. u lá-k tú ém a-zɔɔ. (smith01c)
3s be.PST-PFV 3s.HAB do SG.NC-smithing
'He used to do smithing work.'

b. Cet-mé lá-k tú gwáa c-lɔn táhna. (monkey10)
father-1s.POSS be.PST-PFV 3s.HAB plant yams here
'My father used to plant yams here.'

c. rihi-c-ə́n c-u re-in tú kumu (monkey03)
thing-PL.NC-that PL.NC-3s be.REL-SUB 3s.HAB obtain
'the things [good crops] that he kept getting'

Both (9a) and (9b) use the *la* form of the stative copula ('be.PST') inflected with the perfective suffix *-k*. Taken together, these put the entire habitual situation in the past, conveying the message that the situation no longer holds at the time of speaking/narration. (9a) is the first time setting information given in the *Smith* story. The preceding two clauses, introducing the central character of the story with presentational focus, are ambiguous in their time reference: 'There is/was a certain senior brother of ours, whom we have/had …' (smith01a-b). The inflected stative verb tells the audience that the man's smithing activity is a thing of the past (likely because he has died) and also establishes the days of his smithing as the time period of the story.

The same inflected form of the stative is used by Mosquito to give a past time setting to the period in which his father farmed the land where Monkey was so hard at work. This is part of Mosquito's direct speech and sets the time frame for his discouraging information, which implies that this particular land yields very thin yams. If the *lák* form is omitted, the time period of *Babá* Mosquito's farming would be ambiguous: it could be thought to include the present, in which case Monkey would be encroaching on *Babá's* farm; it could even be a future period, in which case the idea is that *Babá* Mosquito will succeed Monkey as the cultivator of this land.

The third example, (9c), comes from an earlier point in the Monkey-Mosquito story. The grammatical structure used is a relative clause embedded in an adverbial. This adverbial gives the reason why Monkey was so happy with his farm that he decided to expand to new territory. As in the previous two, it would be grammatically possible to omit the stative verb component (shaded material). However, this omission would introduce an ambiguity regarding whether the period of bountiful crops referred to is present or future. Given the nature of the preceding context, the more likely interpretation would be that Monkey was happy because he would be getting good crops on a regular basis in the future.[17] The use of the *re* (be.REL) allomorph[18] in the relative clause is a clear signal that Monkey is happy, based on bumper crops in the discourse present, as translated–'Monkey was happy with the crops he kept getting.'

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[17] The possibility of construing C'lela habitual marking as referring to a future expectation is outside the scope of this paper, but nonetheless a phenomenon of great interest.

[18] The *la* allomorph could be used in place of *re* to indicate that the good crops were solely a phenomenon of the past, with the resulting verb form *laine*. This would not make sense in the context, however.

3.2. Reduced construction. So the stative copula component is present to disambiguate the time period referred to by the habitual marking. Its absence in the reduced construction would suggest that there are other elements in the context that make the time period of the habitual clear. This is our hypothesis as we proceed.

(10) Example from *Monkey* text – habitual aspect, time setting in context

Tə́mə́	tə́c	émá	gɛ́	c-dámrá…	(monkey11)
moreover	3P.NC.HAB	do	EMPH	AGR[19]-big	

‘What’s more, they [the yams] would get really big …’
(*time setting* – ‘My father used to plant yams here.’ monkey10)

This is the continuation of Mosquito’s disturbing revelation to Monkey, so we are already familiar with the time setting established in the prior clause of Mosquito’s speech. Mosquito contends that in his father’s farming days the yams would year after year grow to be really big. This sets up the enthusiastic farmer, Monkey, for the disappointment of the message’s conclusion – ‘yes, as big as my thigh.’ Since no change of time is even hinted at in Mosquito’s words, the habitual aspect is assumed to still refer to the same time period. Notice the presence of the two mandatory features of habitual marking – the augmented subject pronoun (in accord with the noun class of ‘yams’) and the high tone on the pronoun that extends through the verb (citation form *emá* ‘do’).

(11) Examples from *Hyena* text – habitual aspect, time setting in context

a.	Unwá	tú	bálə́m	dwiri.	(hyena04)
	3S.INDEP	3S.HAB	turn.into	hyena	

‘Now he, he used to turn into a hyena.’
(*time setting* – ‘A long time ago, there lived a man in our village.’, hyena01)

b.	málé	tú	hán	ən	rig	baa	cet-áco	(ref. hyena08)
	always	3S.HAB	come	in	visit	place	father-1P.EXCL.POSS	

‘… he always used to come visiting at our father’s house.’
(*time clause* – ‘When he went out …’, hyena07)

The examples in (11) are from the same narrative, and both give explanatory background information before the mainline action of the narrative begins. From the time setting information of (11a) we see that two sentences intervene between the time setting clauses at the beginning of the narrative and the clause marked with habitual aspect. One gives the name of the main character and the other makes a statement about his character, marked with the perfective aspect. So the time setting is maintained throughout and there is no potential ambiguity to resolve.

In (11b) a time clause, ‘when he went out’, immediately precedes the clause marked with habitual aspect. The fronted time adverb *málé* ‘always’ also serves to convey the idea that the habitual situation is in the discourse present. The explanatory background goes on to give details of the man/hyena’s regular strategy for catching and consuming big goats being kept by his neighbors, which habitual activity naturally sets things up for the mainline action of the story.

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[19] AGR=NC agreement

(12) Examples from *Smith* text – habitual aspect, time setting in context

a. tú zɔ́ɔ c-kwintə, tú zɔ́ɔ c-kərmə,[20]
3s.HAB forge PL.NC-hoe 3s.HAB forge PL.NC-hand.plow,
tú zɔ́ɔ m-gyuru, … tú bábá cə.
3s.HAB forge PL.NC-axe, … 3s.HAB sell 3P.NC
'… he would make hoes, he would make hand plows, he would make axes, … [3 more items], and he would sell them.'
(time *adverbial* (fronted) – 'after that incident', smith06)

b. tá tɔ́ɔ-ré ən gyəə-m n-i-lɛ́. (ref. smith18)
3P.HAB leave.DISTR in go.home-MS.NC of-SG.NC-hometown
'… they kept leaving one by one, going on to [the burial in] the hometown.'
(*time adverbial* (fronted) – 'in the midst of that situation', smith17)

The examples in (12) are taken from the narrative characterizing the K'Lela blacksmith. While the first and third vignettes each give an incident showing his wicked treatment of his children and his wife, the short middle vignette in (12) is a description of his general lifestyle. The main point of this vignette is that he works hard and makes money at smithing, to the extent that he does not need to grow crops like his neighbors. It is not surprising that habitual aspect is marked or at least implied throughout this section of the narrative. (12a) introduces it with a list of the items that the blacksmith was accustomed to making and selling. The time adverbial which comes immediately before this list links it to the previous vignette and makes it clear that we are still in the same time period, the man's working life as a blacksmith.

The statement of (12b) comes at the very end of the third and most powerful vignette in the *Smith* narrative. It is not the marked peak of the vignette, which occurs several clauses earlier, but concludes the explanation of the peak clause – 'those women really did a great thing.' The time adverbial immediately *before* the peak (given in translation at the end of the example) controls the interpretation of the habitual aspect in the final clause of the story. It is not a habitual situation in the usual sense of the word, as the time period where the women 'kept leaving one by one' is not even as long as a day. However, it does at least partially meet Comrie's criterion for habitual situations referred to in the introduction of this section: it is action which is *characteristic* of an extended period of time (Comrie 1976:27-28, emphasis mine). That the length of the period is hardly as extended as would usually be required of habituality probably adds to the humor of its construal as a long period. The action of going off one or two at a time with portions of the food surplus of the husband-tyrannized wife is certainly what characterizes the elderly women's heroic performance. And all done according to proper Lelna custom in such circumstances!

3.3. SUMMARY: HABITUAL ASPECT IN C'LELA. As was earlier shown to be the case for the progressive, a C'lela clause marked with habitual aspect draws the necessary tense distinctions from its context. We have shown how this works for each example in the previous sub-section. For example, in set (9) we contended that the stative copula's presence at the beginning of the clause is not optional in these kinds of cases but provides an unambiguous interpretation of what time period the habitual is referring to.

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[20] *Ref.* smith06-07, final clause simplified

The usual C'lela strategy for marking habitual aspect, as we have seen, is to augment the usual subject pronoun with a *t-* prefix and a high tone. It is good to consider briefly how this compares to strategies in other West African languages. Tucker (2003:110) explains how Kisi, a Niger-Congo language in the Atlantic group, marks a past habitual morpheme on its subject pronouns. A cursory look at a collection of texts in Dukanci (Heath & Heath 2002), a close relative of C'lela in the West Kainji group, brought up the use of an auxiliary verb *sɛngɛ* to express habitual meaning. Cishingini, a more distant West Kainji relative, uses a strategy of verbal inflection to convey habitual aspect. This takes the form of a prefix *tsɨ̀-* "immediately before the verb root and after the subject/topic agreement prefix" Crozier (1984:161-62).

One common way of conveying a future happening in C'lela seems to follow a strategy identical to that for marking habitual aspect, except that contextual time information clearly indicates a strictly future period rather than (as for habitual) a strictly past period or a period that includes the present. My hypothesis is that this is a logical extension (by projection into a future time period) of the use of the habitual aspect to indicate customary ways of acting, whether for cultural or personal reasons. I suggest that research across various Kainji languages to look for similarities in how concepts of future and habitual are marked could bring interesting results.[21]

4. COMPARISON OF PROGRESSIVE AND HABITUAL. What, then, are the similarities and differences that can be observed between progressive and habitual aspect in C'lela?

We have seen similarities and differences in syntactic constructions. Both progressive and habitual involve periphrastic construction rather than inflection on the verb. Both may involve the stative copula. However, a prime difference we have seen between the two is that the progressive aspect requires the stative copula as main verb, whereas it is only present in the habitual construction in order to provide time setting information that would be otherwise lacking. A second syntactic difference in the two constructions is that the action is expressed by a verbal noun in the progressive but by a verb in the habitual.

Semantically, neither progressive nor habitual marking inherently give tense information. Both rather signal attention to the internal structure of a particular period of time in which the action occurs, thus validating their interpretation as two types of imperfective aspect.

In terms of discourse function, we have seen that both progressive and habitual are found in various types of background statements, including reported speech. Progressive aspect tends to be used when describing a period of time or when giving an action as background to the mainline verb. Habitual aspect tends to be used when an action characteristic of a period of time is being pointed out, often as explanation for mainline action.

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[21] To mark future, Swahili uses an inflection *-tá-* between the subject agreement marker and the verb (Mutaka and Tamanji 2000:184). This seems similar to the two necessary components of C'lela habitual (and future) marking.

5. CONCLUSIONS. This study seeks to remind linguists pursuing field research of the utility of exploring a language on its own terms rather than superimposing the grammatical categories and mental constructs of a meta language such as English. This is not by any means a new idea or practice, but one worth strengthening. We have explored the C'lela system for making time distinctions in narratives and other kinds of texts, especially in relation to progressive and habitual aspects. The methodology of analyzing clauses in the context of complete texts reveals that C'lela follows a remarkably different strategy for making time distinctions than English does. This paper also supports the notion, again not new to linguists or anthropologists, that the study of texts is a good springboard for exploring cultures. Even the small selection of C'lela texts we have studied here takes us into Lelna burial customs, subsistence economics, rules of male-female interaction, and cultural and personal expectations when visiting in someone's home. Study of discourse originating in a different culture necessarily takes us far beyond the fine points of grammar, semantics and pragmatics.

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APPENDIX 1 – C'LELA TEXTS[22]

Abbrev.	**Genre**	**Speaker & Dialect**	**Language Consultant**
Farmer	Narrative	Matthew Ibrahim, Isgogo	Sunday Ango K'Bancho
Smith	Narrative	Wade Dasa, Senchi	Peter Nasoma Senchi
Modern	Dialogue - Conversation	Ret'd Captain Ango Pəni Mrs. Anna Ango, Pəni	Bulus Doro Rikoto Sunday Ango K'Bancho
Gəlmə	Expository	Deacon Samaila Shamaki, Pəni	Bulus Doro Rikoto Sunday Ango K'Bancho
Monkey	Narrative – Fable	Andrew Chəri, Rumu	Danladi Sanche
Hyena	Narrative	Sibə Isa, Manga	Danladi Sanche

APPENDIX 2 – GLOSSING ABBREVIATIONS

1	first person
2	second person
3	third person
s	singular
p	plural
INDEP	independent/emphatic pronoun
AGR	NC agreement
COND	conditional
COMP	complementizer
CONJ	conjunction
COP	copula
DEV	development of author's purpose
DISTR	distributive
EMPH	emphasis
EXCL	exclusive
HAB	habitual
INCL	inclusive
IPFV	imperfective
MS	mass/non-count noun
NC	noun class marker
NEG	negation, negative
PFV	perfective
PFV2	highlighting perfective
PL	plural
POSS	possessive
PREP	preposition
PROG	progressive
PST	past
Q	question particle/marker
REL	relative
SBJ	subject
SG	singular
SUB	subordinator

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[22] Language Consultants: primary help in glossing & explaining, cultural background

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APPENDIX 3 - TRANSCRIPTION CONVENTIONS

/r/ for [ɾ] ; /c/ for [t͡ʃ] ; /j/ for [d͡ʒ] ; /y/ for [j] ;

/ə/for [ɘ]–that is, this central vowel is more close than [ə], more open than [ɨ];

/aa/ for [aː]–other long vowels are similarly written double.

Labialized and palatalized consonants are written as /Cw/, /Cy/ respectively.

Tone: An unmarked vowel has emically low tone. The one exception to this is that when the second vowel of a double is unmarked, it matches the first vowel of the double in tone. e.g. /káa/ is written for [káː]

The one exception to phonemic transcription, followed consistently by the author and by the proposed orthography, is that epenthetic schwa /ə/ is shown wherever required by C'lela syllabification rules. Schwa occurs predictably in these settings but contrastively in others. The author considers it preferable in a paper focusing on syntax rather than morphophonology to show a single pronounceable line of C'lela in each example.

AN INFORMATION THEORETIC ACCOUNT OF KOREAN PASSIVE ALLOMORPHS

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Abstract. The morphological passive construction in Korean is derived from the concatenation of a lexically specified verb and one of the four allomorphs, -*i*-, -*hi*-, -*li*-, and -*ki*-. For example, the morphological passive form of *cha*- 'to kick' is *cha-i*- 'to be kicked', but not **cha-hi*-, **cha-li*-, or **cha-ki*-. There have been controversies over how to account for the selectional restriction of a lexically specified verb on the four allomorphs. I propose an account of the allomorphic alternation of the morphological passive construction in terms of information theory. Given a proper representation of the lexical passive verb and passive morpheme, correct selection of a passive allomorph can be induced by information capacity measured as entropy, a quantifiable measure of uncertainty. This approach to the morphological passive construction implies that a combination of linguistic representation and stochastic rule induction learning might be operative in the allomorphic realization of morphological passive construction in Korean.[1]

Keywords: Korean, morphological passive construction, passive allomorphs, Information Theory, entropy, information gain

Languages: Korean

THIS PAPER PROPOSES AN INFORMATION THEORETIC account of allomorphic alternations in the Korean morphological passive construction (Shannon 1948; Quinlan 1986, 1990). There are two types of passive construction in Korean: one is a syntactic passive construction and the other is a morphological passive construction.[2]

The syntactic passive construction in (2) is derived from the active counterpart in (1). It consists of the form of 'verbal stem -{*e*, *a*}-*ci'*, where -*e*- and -*a*- are infinitive endings, and -*ci*- ('become') is an auxiliary verb.

(1)	John-i	Mary-lul	elkwul-ul	kuli-ess-ta.
	John-NOM	Mary-ACC	face-ACC	draw-PAST-DEC
	'John drew Mary's face.'			

(2)	Mary-ka	John-eyeuyhaese	elkwul-i/*ul	kuli-e-ci-ess-ta
	Mary-NOM	John-by	face-NOM/*ACC	draw-e-PASS-PAST-DEC
	'Mary's face was drawn by John.'			

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[1] Earlier versions of the present paper were presented at the MOT (Montreal-Ottawa-Toronto) Phonology Workshop (March 2010) and the Workshop on Korean Linguistics: In Honor of Chin-Woo Kim (May 2006) at the University of Illinois at Urbana-Champaign. I am grateful to Elizabeth Hume, Ivona Kucerova, Chin-Woo Kim, Jennifer Cole, James Yoon, Chilin Shih, and Richard Sproat for discussion.

[2] Lexicalized passive forms also exist in Korean such as *macta* 'be hit' (cf. the active counterparts *chita* and *ttaylita* 'hit').

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The morphological passive construction exemplified in (3-6) is derived by concatenating a lexically specified verb and one of the four allomorphs, *-i-*, *-hi-*, *-li-*, and -ki-. Only one of the four allomorphs is allowed, depending on the type of the verb.

(3) John-i Mary-eykey tali-ka/lul cha-i/*hi/*li/*ki-ess-ta
John-NOM Mary-by leg-NOM/ACC kick-PASS-PAST-DEC
'John was kicked in the leg by Mary.'

(4) Mary-ka John-eykey son-i/ul cap-hi/*i/*li/*ki-ess-ta
Mary-NOM John-by hand-NOM/ACC catch-PASS-PAST-DEC
'Mary was caught by the hand by John.'

(5) Mary-ka kay-eykey tali-ka/lul mul-li/*i/*hi/*ki-ess-ta
Mary-NOM dog-by leg-NOM/ACC bite-PASS-PAST-DEC
'Mary was bitten on the leg by a dog.'

(6) John-i Mary-eykey meli-ka/lul kam-ki/*i/*hi/*li-ess-ta
John-NOM Mary-by hair-NOM/ACC wash-PASS-PAST-DEC
'John had his hair washed by Mary.'

Regarding the morphologically passive constructions, there have been different approaches that attempt to account for the selection of a proper passive allomorph by a lexically specified verb.

In this paper, I focus on the morphological passive construction and propose an alternative to the selection of passive allomorphs under the framework of Information Theory (Shannon 1948). Earlier approaches to the allomorphic alternation of the passive morpheme include:

(i) Derivation of the proper allomorph from an underlying form (C-W. Kim 1973; Bak 1982; Y.-S. Kim 1984)
(ii) Positing allomorphy rules under the framework of Lexical Phonology (Ahn 1985; Ahn 1996; cf. Kiparsky 1982, 1985)
(iii) An Optimality Theoretic account of the allomorphic alternation using constraint ranking (Ahn 1997; Kang 1997; cf. McCarthy & Prince 1993; Prince & Smolensky 1993)
(iv) Listing verb-allomorph pairs in the lexicon (Cho 1986)

There is a rather stark contrast between approaches (i-iii) and approach (iv). The first three approaches postulate rules or constraints, whereas the last approach requires every verb-allomorph pair to be listed in the lexicon. The existence of exceptional patterns is problematic for the rule or constraint-based approaches in (i-iii). In general, the stem-final syllable coda is the conditioning factor that is crucial to the selection of the allomorphs in Korean passive morphology. For example, Ahn (1996) claims that several allomorphy rules can predict most cases of lexical suffixation for passives. Below I give the distribution of each of the four allomorphs and the rules proposed in Ahn (1996) for the passive allomorph distribution:

The distribution of *-ki-* is formalized with the allomorph rule in (7):

(7) [PASS] → *ki* / [+CONS, -PLOSIVE, -LATERAL] + __________

The rule in (7) states that -*ki*- in Korean occurs after the stem-final -(l)m-, -n(h)-, -*s*-, -*t*-, and -*c*-. Examples include *kam-ki-ta* ‘be wound’, *salm-ki-ta* ‘be boiled’, *an-ki-ta* ‘be hugged’, and *s’is-ki-ta* ‘be washed.’

The distribution of -*hi*- is formalized with the allomorph rule in (8):

(8) [PASS] → *hi* / [-CONT, -TENSE] + _____

In (8), -*hi*- is attached to a verb which ends with a consonant which can be aspirated, i.e., [-TENSE] (C.-W. Kim 1973). There are examples such as *mak-hi-ta* ‘be blocked’, *kat-hi-ta* ‘be locked’, and *p’op-hi-ta* ‘be pulled out’.

The allomorph rule in (9) accounts for the distribution of -*li*-:

(9) [PASS] → *li* / [+LATERAL] + _____

In (9), -*li*- appears after a verbal stem which ends with an [*l*] on the phonetic level. That is, -*li*- always appears after an -*l*- but this *l* can be either an underlying or a derived form, e.g., *kal-li-ta* ‘be ground’, *nal-li-ta* ‘be blown off’, *t’ulh-li-ta* [*t’ullida*] ‘be passed’.

Finally, the distribution of -*i*- is accounted for with the allomorph rule in (10):

(10) [PASS] → *i* elsewhere

The rule in (10) provides -*i*- in cases which are not covered by the allomorphy rules for -*ki*-, -*hi*-, and -*li*- suffixation. Examples include *k’i-i-ta* ‘be inserted’, *noh-i-ta* ‘be locked’, *k’a-i-ta* ‘be cut’, *halt*^{h}*-i-ta* ‘be licked’, and *təp*^{h}*-i-ta* ‘be covered’

As noted in Ahn (1996), there are exceptions to this generalization: The environment of -*ki*- (i.e. the stem final -*t*- and -*c*-) overlaps with that of -*hi*-, as shown in (11) and (12). Despite the identical segments in the syllable coda of the verbal stem, different allomorphs are chosen (Ahn (1996)).

(11) *töt-ki-ta* ‘be picked’ *c’oc-ki-ta* ‘be chased’ *c’ic-ki-ta* ‘be torn’

(12) *tat-hi-ta* ‘be closed’ *mɛc-hi-ta* ‘be tied’

Ahn (1996) states that it is necessary to list a few exceptional cases in the lexicon. Mere listing of the verb-allomorph pairs in the lexicon does not raise any problem with these exceptional patterns, but the listing approach suffers from lack of generalization.

1. An information theoretic account. I propose an Information-Theoretic account of the allomorphic alternation in the Korean morphological passive construction using such quantifiable measures as entropy, conditional entropy, information gain, and decision trees (Shannon 1948; Quinlan 1986, 1993). Given the proper representation of lexically-specified passive verbal stems and passive allomorphs, general rules which select a correct allomorph to a given passive verbal stem can be induced. Information capacity measured as entropy, conditional entropy and information gain (Shannon 1948; Quinlan 1986, 1993) is used to convert the observed patterns into rules via a decision tree using iterative decision criteria (Quinlan 1986). A measure of entropy calculated over observed data is used to capture the generalization which approaches (i-iii) are designed to capture, but also properly handle the seemingly

exceptional patterns in (11) and (12). In the following, I will introduce the concepts of entropy, and information gain, respectively.

1.1. ENTROPY AND CONDITIONAL ENTROPY AS MEASURES OF UNCERTAINTY. As noted in Hall (2009), predictability of distribution is crucial in establishing phonological relations. Information Theory (Shannon 1948) provides quantifiable tools that enable us to measure the degree of predictability. That is, entropy is used as a measurement that quantifies predictability or uncertainty. The concept of entropy is not new and has long been recognized and used in the study of languages, including computational linguistics (Jurafsky & Martin 2000), historical linguistics (Juola 1998), psycholinguistics, e.g. word segmentation (Brent & Cartwright 1996), phonology (Hume 2008; Hall 2009), and morphology (Malouf & Ackerman 2010), among others[3]. When used in phonological relations, entropy can provide a way of formally describing and comparing even those phonological relationships which have been treated as "exceptions, ignored, relegated to alternative grammars, or otherwise seen as problematic for traditional descriptions of phonology." (Hall 2009)

Entropy is defined as the weighted average of uncertainty for all possible outcomes (x's) of a random variable (X), as in (13):

$$(13) \quad H(X) = -\sum_{x \in X} p(x) \log_2 p(x)$$

In (13), ***p(x)*** is the probability that the outcome is ***x***, and ***–log p(x)*** is how uncertain we would be if the outcome were ***x*** (Malouf 2009). Entropy can be interpreted in a number of different ways (Malouf 2009): (i) the average number of bits required to store the value of ***X***; (ii) the average number of yes-or-no questions that one would have to ask to guess the value of ***X***; or (iii) the expected value of the surprisal for each possible value.

I will illustrate how to calculate and interpret the entropy of a binary event. If an event occurs with the probability of either ***1*** or ***0***, the entropy is at its minimum (i.e. ***0***), and thus the event is highly predictable. In other words, you are absolutely certain of the outcome of the event. If an event occurs with probability of ***0.5***, the entropy is at its maximum (i.e. ***1***), and thus the event is highly unpredictable. In other words, you are quite uncertain of the outcome of the event.

As a concrete example, let us consider the entropy in the Russian noun declension paradigm (14), which is taken from Malouf &Ackerman (2010).

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[3] The most common use of entropy in phonology is nicely summarized in Hall (2009: p. 104): "Entropy is commonly used as a means of (1) determining the number of features or other units needed to convey a linguistic message, (2) measuring the relative work done by (i.e., the functional load of) different contrasts in a language, (3) conducting phonological classification for the purpose of automatic speech recognition, (4) learning phonological models, (5) quantifying the notion of phonological markedness and thus predicting certain phonological processes and changes, and (6) quantifying the choice between two sounds in a single phonological environment, rather than the choice among sounds in the entire set of phonological entities."

Nom.pl.	Acc.pl.	Gen.pl.	Dat.pl.	Loc.pl.	Inst.pl.	
*del-**a***	*del-**a***	*del*	*del-am*	*del-ax*	*del-am'i*	'business'
*zavod-**i***	*zavod-**i***	*zavod-**ov***	*zavod-am*	*zavod-ax*	*zavod-am'i*	'factory'
*stran-**i***	*stran-**i***	*stran*	*stran-am*	*stran-ax*	*stran-am'i*	'country'
*gvozd'-**i***	*gvozd'-**i***	*gvozd'-**ej***	*gvozd'-am*	*gvozd'-ax*	*gvozd'-am'i*	'nail'

Table 1. Russian noun declension (adapted from Malouf & Ackerman (2010))

Some cells in the paradigm in Table 1 contain more than one suffix type, and other cells contain a single suffix. Information Entropy for each cell is given in (14-16), and the number of bits indicates degree of uncertainty associated with the suffixes in this paradigm:

(14) $$H(\text{Nom.pl.}) = H(\text{Acc.pl.}) = -(\frac{1}{4}\log_2\frac{1}{4} + \frac{3}{4}\log_2\frac{3}{4}) = 0.81\text{ bit}$$

(15) $$H(\text{Dat.pl.}) = H(\text{Loc.pl.}) = H(\text{Inst.pl.}) = -(\frac{4}{4}\log_2\frac{4}{4}) = 0\text{ bit}$$

(16) $$H(\text{Gen.pl.}) = -(\frac{2}{4}\log_2\frac{2}{4} + \frac{1}{4}\log_2\frac{1}{4} + \frac{1}{4}\log_2\frac{1}{4}) = 1.5\text{ bits}$$

Allomorphic relations between verbal stems and passive allomorphs can best be modeled using conditional entropy. Conditional entropy is the uncertainty in one random variable on average (i.e. ***Y***), given the knowledge of another random variable (i.e. ***X***), as defined in (17):

(17) $$H(Y \mid X) = -\sum_{x\in X} P(x) \sum_{y\in Y} P(y \mid x)\log_2(y \mid x)$$

Once again let us consider the example from the Russian noun declension in Table 1. If we know that the suffix indicating the nom.pl. is *–a*, then we know with certainty that the null suffix indicates gen.pl. The calculated conditional entropy of ***0*** bit in (18) fits our intuition:

(18) $$H(\text{gen.pl.} \mid \text{nom.pl.} = \text{–a}) = -(\frac{1}{1}\log_2\frac{1}{1}) = 0\text{ bit}$$

Conditional entropy can be applied to modeling the Korean morphological passive construction. In particular, I argue that the conditional entropy value of the four allomorphs can be calculated, based on the type of stem-final syllable coda. This is based on the assumption that if the stem-final syllable coda plays a crucial role in selecting passive allomorphs, we would expect very low conditional entropy values.

2. INFORMATION THEORETIC MODELING OF KOREAN PASSIVE ALLOMORPHS.

2.1. DATA AND FEATURE REPRESENTATION. Data used in this experiment are taken from Ahn (1996), who compiled the list based on three Korean dictionaries. A total of 148 morphological passive items are used in this experiment. Table 2 illustrates the feature representation: onset, nucleus, and coda of the final syllable in the passive verbal stem are hand-coded, along with the target attribute of 4 types of passive allomorphs.

Stem-final Syllable			Passive
Onset	Nucleus	Coda	
k’	a	k	**i**
k	ɛ	ø	**i**
p	o	k’	**i**
k	ə	t	**hi**
p’	o	p	**hi**
k	a	l	**li**
k’	ö	l	**li**
c’	o	c	**ki**
c’	i	c	**ki**
t’	ö	t	**ki**
t	a	m	**ki**
…	…	…	…

Table 2. Example of feature representation (ø is used for empty slots in the syllable.)

Based on the feature representation in Table 2, the conditional entropy for each verbal stem for an allomorph is calculated. The conditional entropy calculation for each allomorph is done starting from the verb final segment and then moving to the preceding segments in the stem. When the conditional entropy of the final segment in the verbal stem is not ***0***, a decision is made to split the data into smaller sets, and a new entropy value is calculated by moving to the preceding column in the feature matrix. This approach to the morphological passive construction assumes that a combination of linguistic representation, such as syllable structure, and stochastic rule induction learning will be operating together in realizing allomorphs in the Korean morphological passive construction.

Table 3 shows the conditional entropy of the stem-final syllable coda conditioned by four types of passive allomorphs. When entropy approaches zero, the outcome is highly certain. As entropy increases, the uncertainty increases as well.

Coda	Allomorph	Frequency	Probability	Entropy
p	hi	12	0.0810	0.0
t	hi or ki	6	0.0405	**0.6500**
c	hi or ki	5	0.0337	**0.9709**
k	hi	8	0.0540	0.0
s	ki	2	0.0135	0.0
h	ki	2	0.0135	0.0
k’	ki	7	0.0472	0.0
ph	i	2	0.0135	0.0
th	i	1	0.0067	0.0
l	li	56	0.3783	0.0
m	ki	3	0.0202	0.0
n	ki	1	0.0067	0.0
nc	ki	1	0.0067	0.0
nh	ki	1	0.0067	0.0
lp	hi	2	0.0135	0.0
lk	hi	4	0.0270	0.0
lth	hi	1	0.0067	0.0
lm	ki	2	0.0135	0.0

Coda	Allomorph	Frequency	Probability	Entropy
lh	li	2	0.0135	0.0
ø	i	30	0.2027	0.0

Table 3. ***Allomorph conditional entropy with frequency, probability for stem-final coda***

In Table 3, the conditional entropy value in the syllable coda of the verbal stem appears to be informative, since most codas have zero entropy values. It is also evident that uncertainty occurs when the coda of the stem-final syllable is either -*t* or -*c*, as the two non-zero entropy values illustrate.

Table 4 shows the calculated measures of average conditional entropy based on the position in the last syllable. Again, most passive allomorphs are associated undoubtedly on the basis of the coda of the stem-final syllable.

	Onset	Nucleus	Coda
Conditional Entropy	1.3291	1.5274	0.0591

Table 4. ***Conditional entropy average values for stem-final syllable positions input feature***

Because of the uncertainty in cases where the stem-final syllable coda is either -*t* or -*c*, we need to consider other syllable positions to find out whether the other positions will help resolve the ambiguity regarding the selection of the passive allomorphs. A general method exists that chooses the least uncertain feature value from the input feature matrix. This method is called **information gain** (Quinlan 1986). The formula for computing the information gain is given in (20):

(20) $$\text{Gain}(X,A) = H(X) - \sum_{v \in A} \frac{|X_V|}{|X|} H(X_V)$$

Information gain is computed as the difference between degrees of uncertainty in the whole features and the weighted summation of degrees of uncertainty in the subset features. The weight is based on the number of records for each attribute value.

Table 5 shows the computed values of information gain from the input feature matrix, together with average entropy and conditional entropy:

	Onset	Nucleus	Coda
Entropy	1.8434	1.8434	1.8434
Conditional Entropy	1.3291	1.5274	0.0591
Information Gain	0.5143	0.3159	**1.7842**

Table 5. ***Average entropy, conditional entropy, and information gain of the input feature matrix of the Korean morphological passive construction.***

The stem-final syllable coda reveals the lowest value of conditional entropy and the highest value of information gain.

As noted above, despite the highest degree of information gain in the stem-final syllable coda, a certain degree of uncertainty still exists when the coda is either -*t*- or -*c*-. Tables 6 and 7 present the full list of all possible morphological passive forms when the stem-final syllable coda is -*t*-, and when the stem-final syllable coda is -*c*-, respectively. We use these data to calculate what the uncertainty (or entropy) value would be when the coda is -*t*- or -*c*-.

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Onset	Nucleus	Coda	Passive
p	a	t	**hi**
t	a	t	**hi**
k	a	t	**hi**
k’	ə	t	**hi**
m	u	t	**hi**
t	ö	t	**ki**

Table 6. Possible morphological passive forms when the coda is -t-

Onset	Nucleus	Coda	Passive
k’	o	c	**hi**
t	i	c	**hi**
c’	o	c	**ki**
s’	i	c	**ki**
c’	i	c	**ki**

Table 7. Possible morphological passive forms when the coda is -c-

When the coda is -*t*- or -*c*-, one of the remaining feature vectors, i.e., either nucleus or onset, is expected to produce the lowest entropy value. Iterative decision criteria will be used to select a feature vector with the lowest entropy value. As shown in Table 8, it turns out that when the syllable coda is -*t*-, the nucleus gives rise to the lowest entropy of ***0***. Thus, no further disambiguation is needed.

Nucleus	Frequency	Probability	Entropy
a	3	0.6	0.9182
u	2	0.4	1.0
ö	1	0.166	0.0
ə	1	0.166	0.0

Table 8. Entropy of stem-final syllable nucleus when the stem-final syllable coda is -t-

When the syllable coda is -*c*-, the syllable nucleus is not informative enough, as shown in Table 9. Therefore, when the syllable coda is -*c*-, it is necessary to consider the entropy value of the syllable onset, as in Table 10.

Nucleus	Frequency	Probability	Entropy
i	3	0.6	0.9182
o	2	0.4	1.0

Table 9. Entropy of stem-final syllable nucleus when the stem-final syllable coda is -c-

Table 10 shows that the entropy values in the syllable onset can be used to settle down the ambiguity between -*hi*- and -*ki*-.

Onset	Frequency	Probability	Entropy
t	1	0.2	0.0
c’	2	0.4	0.0
k’	1	0.2	0.0
s’	1	0.2	0.0

Table 10. Entropy of stem-final syllable onset when the stem-final syllable coda is -c-

3. CONCLUSION. I have described the morphological passive construction in Korean and presented two broadly defined previous approaches for explaining its al-

lomorphy. One type of approach derives the passive allomorphs through rules or constraints, while the other approach lists all the allomorphs and stem pairs in the lexicon. These two approaches suffer from the existence of exceptional patterns, i.e. a lack of generality. The approach taken in this paper utilizes quantifiable measures such as entropy, conditional entropy, information gain, and a recursive rule induction mechanism. These quantified measures successfully induce a general pattern that earlier rule or constraint-based approaches attempted but failed to capture (e.g. C.-W. Kim 1973, Ahn 1985, Ahn 1997). Furthermore, by extending the local context from the stem-final syllable coda to other syllable positions in the verbal stem (i.e. syllable nucleus and syllable onset), the approach can also account for the seemingly exceptional patterns. Thus, rule induction through quantifiable measures is used effectively in understanding the full scope of the passive allomorphic alternation in Korean.

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III

Morphology

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PREFIXATION AND LOAN VERBS IN POLISH

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Abstract. This paper explores the link between prefixation and aspect in non-Slavic verbs which have assimilated into the system of Polish. To assure an expression of aspectuality most foreign verbs acquire a perfectivizing prefix which distinguishes the simplex imperfective form from its prefixed perfective counterpart (French *engager* > Polish *angażować*^{i} : ***za****angażować*^{p}). An examination of loan verb prefixation sheds light on the unorthodox behavior of bi-aspectuals, a small class of verbs which express both aspects with no recourse to perfectivizing prefixation (*kanonizować*$^{i/p}$ 'canonize'). The possibility of applying to Polish the morphological and semantic criteria which in Russian have been found to determine whether a loan verb remains bi-aspectual or acquires aspectuality is discussed. It is suggested that the delimitative *po*- test and the criterion of completability, which have proven successful in distinguishing bi-aspectual from non-bi-aspectual loans in Russian, are not sufficient to determine the aspectual status of loan verbs in Polish.

Keywords: Loan Verbs, Perfectivizing Prefixation, Aspectual Status, Bi-aspectuals, Imperfectives, Delimitative *Po*-Test, Completability, Semantic Classes

Languages: Polish, Russian, French, German, Latin, Italian, Common Slavic, English

When a non-Slavic verb enters a highly inflectional Slavic language like Polish, it adopts the morphological look of a Polish verb, guaranteed by two verbal suffixes: ***owa***, typically occurring in verbs borrowed from German, such as *szmugl**owa**ć* (< German *schmuggeln*), and ***izowa***, added mainly to loans from Latin or French, such as *nacjonal**izowa**ć* (< Latin *natio*; French *nationaliser*) (Giraud-Weber 1998:73). While the suffix ***owa*** is common in both native and foreign verbs cał***owa***ć 'kiss' , *pol**owa**ć* 'hunt' versus *izol**owa**ć* 'isolate', *mont**owa**ć* 'assemble, set up'), the suffix ***izowa*** is generally added only to loan verbs (i.e. verbs of non-Slavic origin, such as *organ**izowa**ć* 'organize', *specjal**izowa**ć* 'specialize' (Giraud-Weber 1998:73). Loan-verb suffixation in Polish is more straightforward than loan-verb suffixation in Russian, where verbs of foreign origin can acquire four different suffixes: ***ova*** (*kompon**ova**tʹ* 'compose'), ***izova*** (*decentral**izova**tʹ* 'decentralize'), ***irova*** (*demask**irova**t'* 'unmask' – cf. Polish *demask**owa**ć*), and ***izirova*** (*iron**izirova**tʹ* 'mock' – cf. Polish *iron**izowa**ć*).[1]

More important than the morphological look of a foreign verb in a Slavic language is its ability to function within the grammatical system of that language. To become

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[1] According to Guiraud-Weber (1998:68), the choice of a particular suffix in Russian loan verbs does not depend on morphophonemic criteria or the loan verb's language of origin, but on the time when the loan verb entered Russian and on its immediate language source.

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part of the verbal system of Polish, loan verbs have to acquire a means for expressing aspect, a grammatical category obligatory in Slavic. All Slavic verbs express aspect, and dictionaries classify each verb as either imperfective, perfective, or bi-aspectual (both imperfective and perfective, depending on use). The aspectual categorization of a verb is, as a rule, indicated by the verb's morphology: perfectivizing prefixes and imperfectivizing suffixes. Prototypically, addition of a prefix indicates the verb's perfectivity while the presence of a suffix points to its imperfectivity. In the majority of cases, the verb's simplex (unprefixed and unsuffixed) form is imperfective by default, as in *pisać*^{i} 'write'[2]. In non-simplex Polish verbs, imperfectivity is guaranteed, and overtly expressed, by the imperfectivizing suffix ***–i/ywa–***, as in *pis**ywa**ć*^{i} 'write many times', *przepis**ywa**ć*^{i} 'rewrite many times'. Perfectivity, again prototypically, is morphologically assured by means of a perfectivizing prefix (sixteen native prefixes are used for perfectivization in Polish), as in ***prze**pisać*^{p} 'write again'; ***za**pisać*^{p} '*za*-write', i.e. write down, sign up for, cover with writing'; ***w**pisać*^{p} 'write in'; ***pod**pisać*^{p} 'sign, write under', etc. or by means of the semelfactive suffix -***ną***-, as in *skubać*^{i} 'pluck out' vs. *skub**ną**ć*^{p} 'pluck out once'.

1. Loan verb aspectualization in Slavic. Loan verbs (in Polish as well as in Russian) resist aspectual suffixation: imperfectivization of a loan verb by means of a suffix (added to unprefixed as well as prefixed perfectives) is possible but rare (Giraud-Weber 1998:71)[3], and adding the semelfactive suffix to a foreign stem is high-

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[2] Following the convention used by Slavicists, I am using the superscript letters '*i*' and '*p*' to denote the verb's imperfective /i/ or perfective /p/ aspectual status. Bogdan & Sullivan (2009:77) suggest that the aspect of a native verb with a simplex stem is determined by the verb's *Aktionsart* ("the aspect of a morphologically simplex stem reflects the *Aktionsart* of its meaning"). A dictionary search the authors conducted on the verbs of a dictionary, described in chapter 5 of the book, offers partial empirical support for the intuitive observation that the Polish verbs' simplex forms are predominantly imperfective. That is what could be expected from the semantics of these verbs, since the vast majority of the simplex-form verbs communicate states or ongoing activities.

[3] In Russian, some examples are: (*za*)*arestovat'*^{p} : *arestovyvat'*^{i}, *mobilizovat'*^{p} : *mobilizovyvat'*^{i} and *zarekomendovat'*^{p} : *zarekomendovyvat'*^{i} (secondary imperfectivization). According to Weber (1998:71) imperfectivization by means of a suffix added to a simple, unprefixed perfective represents an archaic derivation type in modern Russian ("*un procédé vieilli*"). It is practically unused in Polish, where the corresponding imperfective formations **aresztowywać*, **mobilizowywać*, **zarekomendowywać* are not attested. However, the SPP lists examples such as *zmasow**ywa**ć*, the imperfective counterpart of the perfective verb *zmasować* 'amass', but marks the imperfective form as rare. To my native intuition, the secondary imperfective of the impf-pf-impf triplet: *montować* 'assemble'– *wymontować* 'take a part out of a structure or a mechanism'–*wymontowywać* 'take out a part of a mechanism frequently' is quite natural, but I find the secondary imperfectives **zlikwidowywać* (< *likwidować – zlikwidować* 'liquidate one thing'- resultative sense), **polikwidowywać* (< *likwidować* : *polikwidować* 'liquidate many things'-distributive sense) or **zanalizowywać* (< *analizować* : *zanalizować* 'analyze'- resultative sense) unacceptable. The reasons are clearly lexical, for it is difficult to imagine situations that warrant repetition of the resultative actions of having liquidated or having analyzed something (even though, as one of the paper's reviewers has pointed out, situations that warrant repetition of the resultative can exist and can be imagined). By contrast, the same part of a mechanical device or equipment can be taken out for repair several times.

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ly exceptional[4]. Therefore, the most common method of assuring aspectuality in a borrowed verb is perfectivizing prefixation (in both languages – see Giraud-Weber 1998:70, 74). Loan verb perfectivizing prefixation means that a native prefix is added to a loan verb to make it able to express perfectivity. In the process, the original foreign verb turns into two nativized verbs which form an aspectual pair: with the simplex form reserved for expressing imperfectivity and the prefixed form becoming its perfective counterpart. Example (1) illustrates the assimilation process of the French verbs *engager* and *monter* in Polish:

(1)

French		Polish	
engager	>	*angażować*^{i}	‘engage’
		***za**angażować*^{p}	‘engage’
monter	>	*montować*^{i}	‘assemble’
		***z**montować*^{p}	‘assemble’

The aim of this paper is to examine the relationship between verb prefixation and aspect on the material of borrowed non-Slavic verbs which have become part of the verb system of Polish. Assimilated loan verbs provide excellent data for studying Slavic aspect for two reasons. First, in loans the process of acquiring aspectuality has been reduced to one major method – that of perfectivizing prefixation. Second, the semantics of loan verbs is as a rule less complex than the semantics of native verbs; the lexical meaning of borrowed verbs is usually narrower than the original meaning these loan verbs had in the source language or have today in non-Slavic European languages. For instance, as Giraud-Weber (1998:68) observes, the verb *arrêter* in French (from Latin *arresto*) has many more senses than the Russian loan verb *arestovat′* ‘arrest’, whose usage, like that of the Polish *aresztować*, is restricted to the domain of criminology. Another example of semantic specialization in verbal borrowings into Slavic can be provided by the loan verb *akompaniować* ‘accompany’ (from Italian *accompagnare*), which in Polish (and also in Russian) is used only in reference to musical accompaniment. The meanings of the loan verbs *aresztować* and *akompaniować* in Polish are illustrated by the sentences in (2) and in (3)[5]:

(2) *aresztować*^{i} / ***za**aresztować*^{p} ‘put under arrest’:
*Wczoraj policja **zaaresztowała**^{p} Janka.*
‘Yesterday the police **arrested** Janek.’

Giraud-Weber (1998:71) observes that in Russian, aspectual pairs created by suffixation of prefixed perfectives (secondary imperfectivization) are frequent in verbs of Slavic origin, but rare in non-Slavic verbal loans: “*Ces couples sont frequents essentielement parmi les verbes à racine slave; les verbes empruntés sont rares ici.*” Later on, she adds that in Polish such pairs are more common than in Russian: “*[l]es couples verbaux dits de correlation avec un imperfectif secondaire derivé du perfectif préverbé (du type odizolować : odizolowywać) […] sont **en polonaise plus courants qu’en russe***” (Giraud-Weber’s 1998:75, my emphasis)

[4] The only semelfactive perfectives in -*ną*- built on foreign verb bases I am aware of in Polish are: *fundnąć* (the colloquial variant of *zafundować*) ‘to pay for somebody on one occasion’ and *kliknąć* ‘to click a computer key’. In Russian, the stock examples of perfective -*nu*- suffixation are *risknut′* ‘to risk once’ and *spekul′nut′* ‘to speculate once’ (Włodarczyk 1997:101)

[5] According to the *Słownik Wyrazów Obcych* (SWO), the Polish loan verb *aresztować* is a borrowing from Medieval Latin (< Latin *arresto*) while *akompaniować* entered Polish via Italian

(3) *akompaniować*^{i} / ***po****akompaniować*^{p} 'accompany somebody on an instrument, e.g., play the piano when somebody sings'
Każdy student szkoły muzycznej musi mieć osobę, która ***poakompaniuje***^{p} *mu podczas zajęć i podczas prób*. (Google, May 1, 2010)
'Every music school student must have a person who **will accompany** them during practical classes and at rehearsals.'

2. Choice of a perfectivizing prefix. Loan verbs can perfectivize by means of different perfectivizing prefixes. The prefix ***za***- in ***za****aresztować* (2) expresses the sense of completion (result) of a one-time, concrete activity; the prefix ***po***- in ***po****akompaniować* (3) represents a use not yet attested in standard dictionaries of Polish, but quite possible and likely. The use of the prefix is delimitative for it indicates that the activity will last for a short while (during rehearsals and practical classes). As in verbs of Slavic origin, the choice of a perfectivizing prefix in loans is motivated by the prefix's lexical meaning and its compatibility with the lexical meaning of the verb. As evidenced by the list in (4), the Polish loan verb *klasyfikować* 'classify' can combine with the prefixes: ***s***-, ***za***-, ***po***-, ***prze***- to express different modes of action (*Aktionsarten*) following from the specific goals of the action of classifying[6]. (The meanings contributed by the prefixes ***s***-, ***za***-, ***po***-, ***prze***- in the perfective correlates of *klasyfikować* 'classify' are indicated in brackets)

(4) *klasyfikować*^{i} 'classify'
vs.
s*klasyfikować*^{p} 'classify, assign to a class or classes' (perfective *s*-)
za*klasyfikować*^{p} 'accept in/ admit into a class' (prospective *za*-)[7]
po*klasyfikować*^{p} 'place in many classes' (distributive *po*-)
prze*klasyfikować*^{p} 'place in a new class' (place-changing *prze*-)

Only one of the possible prefixed forms of a verb is normally considered as a true perfective partner of its unprefixed imperfective. The largest dictionary of contemporary Polish (SWJP 1996:380) chooses the ***s***-prefixed form ***s****klasyfikować* as the perfective, aspectual-pair counterpart of the imperfective *klasyfikować*, but the distributive ***po***- prefixed near-synonym is listed in the same entry. Stanisławski's (1990) *Great Polish-English Dictionary* (*GPED*) lists the ***s***- derivative as the only (and therefore aspectual) perfective counterpart of the loan[8].

(< Italian *accompagnare*), probably at the time of strong Italian influence during the reign of Queen Bona in the 16th century. (See Karpluk 1993:48)

[6] Commenting on the prefixation possibilities in Russian loans Giraud-Weber (1998:70) suggests that several prefixes are attached to verbs with 'concrete' meanings, such as the technical verbs describing various modalities of action , e.g. the Russian verb *šlifovat*ʹ (Polish: *szlifować*) borrowed from German, can accept four different prefixes (*za*-, *pere*-, *ot*- , *vy*-) to describe different ways of carrying out the activity of cutting and polishing glass or metals.

[7] In choosing the qualification 'prospective' to describe this usage I am following the classification of the meanings of *za*- proposed by Łaziński (2008:9, ms). Prospective *za*- indicates actions done with a future use in mind, as in ***za****pisać* 'write down to be used later on'.

[8] Interestingly, Russian employs the prefix *ras*- in the natural perfective counterpart of the loan

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3. Productivity of perfectivizing prefixes. Some perfectivizing prefixes are more productive than others. This tendency should be reflected in loan-verb prefixation, where prototypically, the primary purpose of a prefix is to express perfectivity (rather than the *Aktionsartal* manner in which the action is completed)[9]. It has been noted by several authors (Grzegorczykowa et al. 1984, Giraud-Weber 1998:75, Łaziński 2008:8, ms) that the most frequent perfectivizing prefixes in contemporary Polish are ***s***-/***z***- and ***za***-[10]. Łaziński (2008:8, ms) also observes that 778 out of a total of 1997 (i.e. 39%) aspectual pairs listed in *Wielki Słownik Polsko-Angielski PWN-Oxford* (2003) are formed with the ***s***-prefixed perfectives. According to his research, ***za***- prefixation comes second in frequency, with 366 aspectual pairs.

In Russian, the prefix ***po***- has generally been recognized as the most productive overall perfectivizer (Dickey 2007:330, after Čertkova 1996; see also Włodarczyk 1997:56, after Avilova 1968). The difference between the two languages in this respect is well demonstrated by the contrast in perfectivizing prefixation of the corresponding (native and loan) verbs in Polish and in Russian, exemplified in (5):

(5)

Polish	Russian	
(***z***)*budować*	(***po***)*stroitʹ*	‘to build’
(***s***)*tracić*	(***po***)*terjatʹ*	‘to lose (money)’
(***s***)*formułować*	(***po***)*formulirovatʹ*	‘to formulate’
(***s***)*formatować*	(***po***)*formatirovatʹ*	‘to format’

(Dickey 2005:36)

The difference in productivity between two ‘strongest’ prefixes in Polish and Russian (the prefixes ***s***- and ***po***-) suggests that the semantic networks of these two prefixes are different in the two languages. They each come from the same Common Slavic (CS) sources, but they must have developed in different ways in Polish and in Russian, which would affect the aspectual systems of the two languages.[11]

It is interesting (and significant for the contrastive theories of Slavic aspect) that the prefixes considered as the most productive overall perfectivizers (***s***-/ ***z***- in Polish and ***po***- in Russian) have not been found to be the commonest in borrowed verbs. In Russian loan verbs the prefix ***po***- used as a natural, aspectual-pair forming perfectivizer has been classed among the least frequent prefixes. Avilova (1968:67) “ranks ***po***- eighth in a list of ten prefixes used by borrowed bi-aspectual verbs” (as reported in Janda 2007b:98). According to Giraud-Weber’s research on loan verb prefixation in Russian and Polish[12], the most frequent loan perfectivizers in Russian are the prefixes

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verb for ‘classify’: ***ras****klassifirovatʹ* (Janda 2007b:95). (See also Russian ***ras****kritikovatʹ* ‘vis-à-vis’ Polish ***s****krytykować* ‘criticize’). Such differences in perfectivizing prefixation point to the (culture-determined?) differences in the mental construal of the same activity in the two languages.

[9] A perfectivizing prefix obviously fulfills both functions in a loan verb, but it seems logical to assume that perfectivizing as such comes before perfectivizing in a specific manner.

[10] Of a different opinion are scholars who include the delimitative *po*- perfectives (*posiedzieć* ‘sit for some time’, *poleżeć* ‘lie for some time’) in the category of pure perfectivizers (*preverbes vides*). Their opinion is that *po*- is the primary productive prefix in Polish. (For discussion see Bacz 2007.)

[11] See Dickey (2008) for discussion of the historical development of *po*- in Russian.

[12] Giraud-Weber obtained her figures from a study of the loan verbs culled from the Russian

za-, ***pro***- and ***s***- (Giraud-Weber 1998:70). She states (Giraud-Weber 1998:75) that in Polish, the commonest perfectivizers of loan verbs are the prefixes ***za***- and ***s***-/***z***-, in that order. Thus, while in Polish, productivity estimates for the most frequent overall perfectivizing prefixes can be said to correspond to the productivity of the most frequent prefixes in loan verbs, in Russian, prefix productivity estimates appear to be markedly different for the two types of verbs.

This discrepancy in the productivity ratings between overall perfectivizers and loan verb perfectivizers in Russian can in part be attributed to the difference in the scholars' views concerning the status of the delimitative prefix ***po***- in the formation of Russian aspectual pairs (for discussion see Włodarczyk 1997). A change in the semantic network of the Russian ***po***- that took place in the 17th century and resulted in the shift of the delimitative sense of the prefix to the central, prototype position, argued for by Dickey (2005, 2007, 2008), may also have affected aspectologists' estimates of the prefix's productivity[13].

The Polish-versus-Russian difference in prefix productivity in loans indicates that the aspectual assimilation process (via prefixation) is different in the two languages. It also suggests that the meaning of the corresponding perfectivizing prefixes may not be the same in the eyes of the speakers of Polish and the speakers of Russian.

4. BI-ASPECTUAL VERBS IN POLISH VERSUS RUSSIAN. A major difference between the aspectual systems of Polish and Russian, reflected in the loan-verb assimilation process, concerns a group of verbs known as bi-aspectuals, i.e. verbs which have only one morphological form (dictionaries mark bi-aspectual verbs as both imperfective and perfective) and express aspect through context. A typical Polish bi-aspectual would be the verb kanonizować 'canonize', which has no aspectual morphology but is unambiguously imperfective when it refers to the present (6a), and unambiguously perfective when it indicates the future (6b):

(6) a. *W tej chwili Papież* ***kanonizuje***^{i} *trzech wietnamskich męczenników.*
'At this moment the Pope **is canonizing** three Vietnamese martyrs.'

b. *Papież* ***kanonizuje***^{p} *Brata André w październiku tego roku.*
'The Pope **will canonize** Frére André in October this year.'

Polish and Russian differ significantly in the number of bi-aspectuals contained in their lexicons. In Russian, the proportion of bi-aspectual verbs in the lexicon is significant. According to the statistics quoted in Janda (2007a), in the loan verbs alone 60%, i.e. more than 300 verbs, are bi-aspectual; Giraud-Weber (1998:72), following the statistics provided in Čertkova (1996:105-109), estimates the number of bi-aspectual loans at 500-600 lexemes. In recent publications on Russian, bi-aspectuals are

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newspapers from the years 1996-1997 (Giraud-Weber 1998:7, fn.2)

[13] The prefix *po*- (its aspectual role, current semantic status and historical development) has become of crucial theoretical importance in recent cognitive studies of aspect, particularly in Russian but also and in the pan-Slavic context. Dickey (2008) has used the *po*- productivity card as the basic piece of evidence for his east-west aspectual division of Slavic, and Janda (2007b) has used the delimitative *po*- based litmus test to define Russian bi-aspectual loans.

considered to form a class and are recognized as a separate category in the Russian verb system. (Giraud-Weber 1998:72, 76).[14]

In Polish, the number of bi-aspectual verbs is very low. Grammars list only a handful of examples that have the characteristic of unquestionable bi-aspectuals, and they are viewed as exceptions, a small peripheral group of verbs in the Polish aspectual system. The fact that the number of bi-aspectual loans in Polish is much smaller than in Russian is explained by the ability of the Polish aspectual system to assimilate newly acquired verbs immediately after they enter the language. Polish loan verbs are equipped with aspectual morphology (perfectivizing prefixes) practically upon arrival and they seem in no need of going through the intermediate stage of bi-aspectuality, vital – so it seems – in the process of loan assimilation in Russian, as evident from the following description by Janda (2007b:105): "… when a foreign verb arrives in the Russian lexicon, it starts out with no aspectual morphology …. As a new immigrant to Russian, a pilgrim verb has only its lexical meaning at the outset."

Concerning the process of loan assimilation in Polish, Giraud-Weber (1998:74) observes that Polish speakers perceive loan verbs as imperfective, which allows them to apply a "quasi-immediate" perfectivization by prefixation[15].

Bi-aspectuals of Slavic provenance are also more frequent in Russian than in Polish, which may have influenced (by providing a model of non-morphological aspectual expression) the treatment of foreign verbs that are newcomers to the Russian system. Examples of non-foreign verbs in Polish and Russian which obviously have the same Slavic roots but represent different aspectual categories in the two languages are given in (7):

(7)	Polish	Russian	
	żenić (*się*)^{i} / ***o****żenić* (*się*)^{p}	*ženit*ʹ(*sja*)$^{i/p}$	'marry, get married'
	ranić^{i} / ***z****ranić*^{p}	*ranit*ʹ$^{i/p}$	'wound', hurt'
	(Włodarczyk 1997:83)		

5. ASPECTUAL CLASSIFICATION OF CORRESPONDING LOAN VERBS IN POLISH AND IN RUSSIAN. Polish and Russian assign different aspectual status to newly arrived loan verbs almost as a rule: while Russian tends to preserve bi-aspectuality, even if it is only a temporary state of affairs,[16] the system of Polish imposes unambiguous aspectual morphology on loan verbs from the very beginning.[17] A comparison I have performed

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[14] But according to Isačenko and Avilova, bi-aspectuals are viewed as an anomaly in the Russian aspectual system (Giraud-Weber 1998,fn. 5)

[15] Cf.: "*On a l'impression que les emprunts verbaux aux langues européennes sont perçus d'emblée par les polonophones comme imperfectifs ce qui permet une perfectivation par préfixation quasi immédiate*" (Giraud-Weber 1998:74).

[16] Janda (2007a:105) observes that even typical Russian bi-aspectuals "may later acquire the morphology of the Russian aspectual system."

[17] In her comments on bi-aspectuality in Polish and in Russian, Włodarczyk (1997:84) quotes the opinion of K. Netteberg (1953 :72): "*... le polonais montre une tendance à se débarrasser de cette ambiguité dans l'aspect, souvent à l'aide de la dérivation [...] et le plus souvent par la préfixation. Cette tendance [...] est en train de transformer le système des aspects en un système dont chaque verbe est ou bien perfectif ou bien imperfectif et où il n'y a pas de verbe*

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manually between a 56-item sample of unquestionably bi-aspectual loans in Russian listed in Janda (2007a:100-101, table 2(a)[18]) and the corresponding loan verbs in Polish reveals that 87% (49 out of 56 comparable items) of the Polish equivalents of Russian bi-aspectual loan verbs have perfective, prefix-marked counterparts and are therefore unambiguously imperfective in the Polish verb system. The examples in (8) illustrate the difference in aspectual classification of the corresponding borrowed verbs in the two languages:

(8)	Polish imperfectives	Russian bi-aspectuals	
	abonować^{i} / *zaabonować*^{p}	*abonirovat*’$^{i/p}$	‘subscribe’
	demaskować^{i} / *zdemaskować*^{p}	*demaskirovat*’$^{i/p}$	‘unmask’
	europeizować^{i} / *zeuropeizować*^{p}	*evropeizirovat*’$^{i/p}$	‘Europeanize’
	niuansować^{i} / *zniuansować*^{p}	*njuansirovat*’$^{i/p}$	‘supply nuances’
	(Janda 2007b: 100)		

The juxtaposition in (8) raises the question of a possible theoretical significance of the difference in aspectual assimilation of loan verbs between Russian and Polish. A close association between loan verbs and bi-aspectuality has been noted in both languages[19], but why should the same foreign verb become bi-aspectual in Russian and imperfective in Polish? That is, why are certain loan verbs bi-aspectual in Russian while the corresponding loan verbs in Polish are imperfective?

Janda (2007b:84) asks a similar question about aspect assignment in Russian, trying to find out “why [in the process of loan-verb assimilation] some foreign verbs become bi-aspectual upon their arrival into the language while others become imperfective simplexes.” Janda’s (2007a) paper reports the results of an empirical study conducted on 550 loan verbs in Russian (listed in Wheeler’s 1972/1992 Russian-English dictionary) in an attempt to identify critical semantic and behavioral differences between imperfective and bi-aspectual verbs. The study compared the behavior of bi-aspectual versus non-bi-aspectual loans with respect to the possibility of forming delimitative ***po***- perfectives, i.e. perfectives that express the sense of “do X for a while”. The ***po***- test, for which the Internet search engines were used extensively, was to verify the correlation, predicted by the cluster model of aspect in Russian,[20] between the semantic profiles of bi-aspectual versus imperfective loans and the abil-

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à double aspect. Cette tendance semble être bien plus faible en russe[...]”

[18] Janda (2007a:100-101) lists 70 unquestionably bi-aspectual Russian verbs (well-attested verbs that have yielded zero *po*- prefixed hits in the search she performed). In my estimate (based on my native-speaker knowledge of Polish), only 56 of these verbs have corresponding loan-verb equivalents in Polish.

[19] The opinion that “most bi-aspectuals are foreign and foreign verbs are often bi-aspectual” has been voiced by Janda (2007b:84) about Russian and by Włodarczyk (1997:83) about Polish.

[20] The cluster model predicts that imperfective (simplex) verbs form complex act (i.e. delimitative *po*- prefixed) perfectives (Janda 2007b:94-95). See Bacz (2007) for a discussion of the first version of the cluster model. Modifications to the model have been proposed in Makarova & Janda (2009) “Do it once: A case study of the Russian *–nu–* semelfactives” published in *Scando-Slavica* 55, 78-99. See Bacz (2010) for a discussion of the modified version of the cluster model from the perspective of Polish.

ity of these two types of loan verbs to combine with the delimitative ***po***- prefix. The study has shown that borrowed imperfective verbs allow "non-completable construals" (i.e. admit of an atelic semantic interpretation) and can therefore easily form ***po***- prefixed perfectives while borrowed bi-aspectuals tend to have completable construals (i.e. are highly telic in their semantic profile) and therefore as a rule do not accept the delimitative ***po***- prefixation. Additionally, the statistics revealed in the course of the study have demonstrated that contrary to the popular tacit assumption that borrowed verbs are nearly all bi-aspectual (Janda 2007b:91), almost 40% of these loans are actually imperfective.

6. DEFINING BI-ASPECTUAL LOAN VERBS IN RUSSIAN. Two important generalizations about bi-aspectual loan verbs in Russian were made on the basis of Janda's findings: (a) "Bi-aspectuals refer to actions that are construable **only** [my emphasis] as completable, involving changing the state or arrangement of something" (Janda 2007b:105), and (b) "Bi-aspectual borrowed verbs are less prone to create ***po***- forms than imperfective borrowed verbs" (Janda 2007b:83).

Thus, according to the findings of Janda's study, the answer to the question of when and why a foreign verb becomes bi-aspectual ultimately lies in the verb's lexical meaning: if a verb is strongly telic (i.e., if it is "construable as completable" or if it "necessarily describes results (or progress toward results)" (Janda 2007b:105), it becomes bi-aspectual and can function in perfective contexts on the strength of its completability, no perfectivizing morphology is required. Also, because of its completability, a verb with a highly telic construal is not likely to occur in "do-it-for-a-while" contexts and thus resists delimitative ***po***- prefixation. Alternately, if a borrowed verb denotes an activity that can be imagined as non-completable, it is likely to accept delimitative ***po***- prefixation, can form perfective counterparts by means of other prefixes and upon arrival in Russian is classified as a non-bi-aspectual, i.e. as an imperfective.

Janda checked all loan verbs in Russian for the possibility of delimitative ***po***- prefixation. Her experiment has confirmed a correlation between resistance to ***po***- prefixation and bi-aspectuality in Russian loans. The findings of the experiment she conducted suggest that the ***po***- prefixation test could be used in Russian to determine a borrowed verb's aspectual assignment.

7. SAMPLE ANALYSIS OF CORRESPONDING LOAN VERBS IN RUSSIAN AND IN POLISH. I have examined three high-frequency loan-verb bi-aspectuals in Russian from Janda's (2007b: 100) list in Table 2(a) in terms of the defining criteria for loan-verb bi-aspectuality proposed in the 2007b paper and I have compared these bi-aspectuals with their loan verb equivalents in Polish. The Russian bi-aspectual verbs randomly chosen for discussion: *desertirovat'* 'desert', *germanizirovat'* 'Germanize', and *reducirovat'* 'reduce' are juxtaposed with their corresponding loan verbs in Polish in (11). While the Russian verbs in (11) are bi-aspectual, their Polish equivalents are morphologically marked for aspect and have the simplex imperfective and the prefixed perfective forms:

(11)

Russian	Polish	
desertirovat'$^{i/p}$	*dezerterować*^{i} / *zdezerterować*^{p}	‘desert’
germanizirovat'$^{i/p}$	*germanizować*^{i} / *zgermanizować*^{p}	‘Germanize’
reducirovat'$^{i/p}$	*redukować*^{i} / *zredukować*^{p}	‘reduce’

All three of the Russian verbs were found to have no delimitative ***po***- uses (zero ***po***- hits). The actions they express can all be described as goal oriented, i.e. completable: deserting (the army) necessarily involves a change of location; when one Germanizes somebody, progress toward the state of being Germanized is necessarily presupposed; when something undergoes reduction, a change of state involving size from unreduced to reduced is unavoidable. What's more, the verbs represent the semantic subtypes identified as exclusive to bi-aspectual loans: removal, cultural/linguistic change of state, physical change of state, respectively. According to the criteria established for imperfective loan verbs in Russian (description of human behaviors associated with various social and professional settings, possibility of being used intransitively, acceptance of the delimitative ***po***- prefixation [Janda 2007b:104]), the verbs *desertirovat'*, *germanizirovat'* and *reducirovat'* have to be bi-aspectual, because they do not conform to any of these criteria.

The equivalent loan verbs in Polish *dezerterować*^{i}**,** *germanizować*^{i}**,** *redukować*^{i} are classified as imperfectives for they all have perfective, morphologically identifiable counterparts formed by means of perfectivizing prefixes. As far as can be judged from the equivalent English translations, the Polish verbs have the same meanings as their loan-verb counterparts in Russian. Thus, their semantic construals can safely be defined as completable, and the semantic subtypes they can be assigned to are also: removal, cultural/linguistic change of state and physical change of state. However, a Polish speaker can easily imagine the actions of Germanizing and reducing in the delimitative (attenuative) ***po***- context of “did X for a while” or “did a bit of X/did X for a bit”. An attested example of the delimitative ***po***- Germanize is quoted in (12):

(12) *A potem się was trochę* ***pogermanizuje****. Niemcy zawsze chętnie będą miały od wschodniej strony rezerwuar taniej siły roboczej.*
‘And then you **will be Germanized a little**. Germany will always gladly have a reservoir of cheap labor on the east side.’
(forum.gazeta.pl.-10.12.2008)

The verb *germanizować* ‘Germanize’ expresses a cultural/linguistic change but it allows a non-completable construal, since the progress towards a new state is long and can be temporarily interrupted.

8. CONCLUSION. The following conclusions can be drawn from the comparison of loan-verb assimilation into the aspectual systems of Polish and Russian in terms of the aspect-assignment criteria proposed for Russian by Janda (2007a):

(1) A solid statistics-based study of Polish bi-aspectual loans is required to establish the semantic profile of the few borrowed verbs that have not acquired perfectivizing prefixation.

(2) The correlation between completability and resistance to the delimitative ***po***-prefixation, established for bi-aspectual loan verbs in Russian, is observed in Polish but is not as strong as postulated for Russian. Loans that are bi-aspectual in Russian but imperfective in Polish accept the delimitative prefix ***po***- more freely.

(3) The overall semantic characteristic and certain semantic types identified as exclusive to bi-aspectual loans in Russian cannot be used to define bi-aspectual loans in Polish because in Polish they characterize imperfective loans.

In sum, foreign verb assimilation into the aspectual system of Polish is different from the assimilation of borrowed verbs in Russian, and the delimitative ***po***- test, which has been shown to be a good indicator of loan bi-aspectuality in Russian (Janda 2007b), appears to be a much less reliable indicator of the aspectual status of verb loans in Polish.

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TOTAL VS. PARTIAL ADJECTIVES: EVIDENCE FROM REDUPLICATION

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Abstract. This paper provides evidence for a structural difference between two classes of antonym adjectives, namely, total adjectives like *structural* and partial adjectives like *clean* and *dirty*. Based on data from morpho-phonological processes in Czech we argue that only total adjectives have their standard value represented in the derivation. In contrast, the standard value of the partial adjectives is determined pragmatically. Furthermore, we argue that antonym adjectives must at least sometimes be represented by overlapping scales. A consequence of the proposed analysis is that an empirically adequate account of antonym adjectives must supply a part of the denotation from lexical semantics and part from the context.

Keywords: gradable adjectives, scales, reduplication, semantics, morpho-semantics, pragmatics

Languages: Czech, English

Czech, a West Slavic language, has a productive system of semantically driven morpho-phonological reduplication (Marantz 1982; Inkelas & Zoll 2005). One such example comes from the morphological marking of aspect. The imperfective verbal morpheme -***va***- is often called habitual since it may encode iterativity if reduplicated, as in (1). The effect of reduplication is indeed semantic and as such has truth-conditional effects: the reduplicated form may be used in habitual or generic sentences, as seen in (2a), but it is incompatible with episodic sentences, as can be seen in (2b).

(1) a. praco-***va***-*l*
work-IMPERF-PP.M.SG
'he worked' *Imperfective/generic*

b. praco-***vá-va***-*l*
work-IMPERF-IMPERF-PP.M.SG
'he used to work' *iterative*

c. praco-***vá-vá-va***-*l*
work-IMPERF-IMPERF-IMPERF-PP.M.SG
'he used to work' *iterative (emphatic)*

(2) a. Petr každé ráno čistí-***vá-va***-l okno.
Petr every morning clean-IMPERF-IMPERF-PP.M.SG window.
'Peter used to clean the window every morning.' √*habitual/generic*

b. *Petr včera ráno čistí-***vá-va***-l okno.
Petr yesterday morning clean-IMPERF-IMPERF-PP.M.SG window.
'Peter used to clean the window yesterday in the morning.' **episodic*

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This paper focuses on another type of semantically driven reduplication, namely, reduplication in antonym adjectives. Czech gradable antonym adjectives may contain a degree morpheme roughly corresponding to English *very*. If the degree morpheme undergoes reduplication, the resulting meaning of the adjective may be paraphrased as 'very, very…(clean)', i.e., emphasizing the standard value of the adjective. Native speakers characterize the resulting interpretation as that of reaching the absolute degree of adjectiveness (for example, of cleanness).

What interests us here is that not every gradable antonym adjective may undergo reduplication. Even though any gradable antonym adjective may contain a degree morpheme, the morpheme may be reduplicated only in so-called *total* adjectives, never in their *partial* counterparts, following the terminology of Yoon 1996. The contrast is shown in (3) and (4). Here, *čistý* 'clean' and *zavřený* 'closed' provide examples of total adjectives and *špinavý* 'dirty' and *otevřený* 'open' provide examples of partial adjectives.

(3) *čistý* 'clean' vs. *špinavý* 'dirty'
    a. *čistý* → *čist'ounký* → *čist'ou**li**nký* → *čist'ou**lili**nký…* √reduplication
    b. *špinavý* → *špinavou**li**nký* → **špinavou**lili**nký…* *reduplication

(4) *zavřený* 'closed' vs. *otevřený* 'open'
    a. *zavřený* → *zavřeňou**li**nký* → *zavřeňou**lili**nký* √reduplication
    b. *otevřený* → *otevřeňou**li**nký* → **otevřeňou**lili**nký…* *reduplication

For presentational purposes we demonstrate the reduplication process in stages. First, we observe that for the degree morpheme to be inserted, the stem of the adjective must be morpho-phonologically modified. The change of the stem is independently motivated by phonotactic constraints on this type of morphological formation and does not directly concerns us here. Once the morpheme – in our case, an infix *-li-*, meaning roughly 'very' – is inserted, the morpheme may be reduplicated without any further phonological or morphological change of the stem. In contrast, as the (b) examples show, even though the partial adjectives *špinavý* 'dirty' and *otevřený* 'open' may be modified by the same degree morpheme, reduplication of this morpheme is impossible. Further examples demonstrating the contrast are given in (5).

A		**B**	
čistý (clean)	*čisťou**lili**nký*	*špinavý* (dirty)	**špinavou**lili**nký*
zavřený (closed)	*zavřeňou**lili**nký*	*otevřený* (open)	**otevřeňou**lili**nký*
zdravý (healthy)	*zdravou**lili**nký*	*nemocný* (ill)	**nemocňou**lili**nký*
rovný (straight)	*rovňou**lili**nký*	*zahnutý* (bent)	**zahňutou**lili**nký*
tenký (thin)	*tenou**lili**nký*	*tlustý* (thick)	**tlusťou**lili**nký*
jemný (slight)	*jemňou**lili**nký*	*hrubý* (rough)	**hrubou**lili**nký*
chabý (faint)	*chabou**lili**nký*	*pevný* (solid)	**pevňou**lili**nký*
křehký (fragile)	*křehou**lili**nký*	*nerozbitný* (unbreakable)	???

Table 5: Some further examples (source: the Czech National Corpus)

The observed restriction on reduplication is rather puzzling, since it does not hold for its semantically closest variant, i.e., adverbial modification by *velmi* 'very', as can be seen in (6). Similarly, the closest English paraphrase (the repetition of 'very') is compatible with both total and partial adjectives as well, as in (7).

(6) *No restriction on adverbial modification:*
  a. *velmi velmi čistý*
    'very very clean'
  b. *velmi velmi špinavý*
    'very very dirty'

(7) *No restriction for English adverbial modification:*
  a. very very clean
  b. very very dirty

Crucially, the restriction cannot be explained in phonological or morphological terms either, because neither of the semantic classes of the adjectives forms a phonological or morphological natural class. Furthermore, if there were any phonotactic restrictions they should be equally resolved within the morpho-phonological changes accompanying the primary modification by the degree morpheme.

The rest of the paper provides evidence that the restriction on reduplication stems from distinct semantic properties of the two classes of adjectives. Concretely, we will argue that the reduplication process refers to a meaning component that is structurally present only in total adjectives. The corresponding meaning component in partial adjectives is never present in the derivation. Instead, it is supplied by the context. Consequently, it cannot serve as an anchor for morpho-phonological processes. We will outline our semantic assumptions and present the actual proposal in Section 2. Section 3 investigates English adverbial modification by *almost* and English and Czech: while the English type of modification is sensitive to the context, this pragmatic strategy fails to rescue reduplication of Czech partial adjectives, thus providing further evidence for the present proposal. Section 4 concludes.

1. PROPOSAL. We assume scalar semantics for adjectives, i.e., the positive form of an adjective denotes a subinterval of the scale $\boldsymbol{S_A}$ where the subinterval depends on a standard value $\boldsymbol{d_A}$ in the scale and where the scale is ordered by a relation $\boldsymbol{R_A}$ which is defined with respect to the standard value $\boldsymbol{d_A} \in \boldsymbol{S_A}$ (Cresswell 1977; von Stechow 1984; Bierwisch 1989; Klein 1991). Furthermore, we assume that the standard value variable $\boldsymbol{d_A}$ is context dependent. The denotation of the positive form of an adjective can be formalized as in (8) (after Rotstein & Winter 2004, ex. (18)):

(8) $\|A\| = \{x \in S_A : R_A(d_A, x)\}$

The complete lexical semantics of an adjective like *long* can be then formalized using λ-abstraction as follows:

(9) $\|long\| = \lambda d_A \lambda x.\ long(x) \geq d_A$

If we formalize the denotations as functions instead of sets, we can understand the denotation of an adjective like *long*, given in (9), as a function (depending on a context) from degree $\boldsymbol{d_A}$ to a set of individuals *x* which yields a truth value of ***1*** if and only if the degree of length of the individual $\boldsymbol{x}$ exceeds the degree $\boldsymbol{d}_A$.[1] Degree $\boldsymbol{d}_A$ can be given explicitly (in most cases by a noun which is modified by the adjective) or implicitly. The relation ≥ is supplied by a covert operator **pos** which operates on the adjective and assigns truth value $\boldsymbol{1}$ only to those individuals (when the adjective is used predicatively) which exceeds the average degree for the comparison class. Von Stechow (1984, R6) defines **pos** in the following way:

(10) *Positive*

Let $\boldsymbol{A^0}$ be any adjective meaning, $\boldsymbol{C}$ be any appropriate property, $\boldsymbol{x}$ be any appropriate individual and $\boldsymbol{w}$ be any world. Then $\boldsymbol{w} \in \|\mathbf{pos}\|$ **iff** $(\exists \boldsymbol{d})$ **[$\boldsymbol{d}$ is an $\boldsymbol{A_0}$-degree & $\boldsymbol{d}$ > average [$\boldsymbol{A_0}$,$\boldsymbol{C}$] & $\boldsymbol{x}$ has $\boldsymbol{d}$ in $\boldsymbol{w}$ & $\boldsymbol{w} \in \boldsymbol{C}(\boldsymbol{x})$]**.

A sentence like *Ferda is a big cat* is true in a world $\boldsymbol{w}$ iff Ferda has a degree of bigness which exceeds the average degree for bigness of cats in the world of evaluation.

Here we are concerned with two basic types of antonym adjectives: partial and total adjectives.[2] We represent total and partial adjectives semantically by a scale and a standard value. A partial adjective indicates *some* amount of the relevant property (moisture, dirt, sickness etc.), while a total adjective indicates *no* amount of such property (e.g., a dirty object has some degree of dirtiness, but it is not necessarily free of cleanliness; in contrast, a clean object is free of dirtiness). As for their semantic denotation, we follow Rotstein & Winter (2004) in formalizing total v. partial adjectives as overlapping scales, schematized in Figure 1.

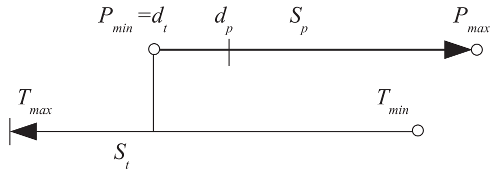

Figure 1: Total and Partial adjective scales

In Figure 1, $\boldsymbol{S_p}$ is a partial scale, without a fixed standard value (context-dependent). $\boldsymbol{S_t}$ is a total scale; its standard value is fixed as the lower bound of its partial counterpart (a healthy man is a man that lacks any illness). Crucially, $\boldsymbol{S_t}$ and $\boldsymbol{S_p}$ are ordered inversely and $\boldsymbol{S_p}$ *may* partially overlap with $\boldsymbol{S_t}$. What this means is that some amount of the relevant partial property does not exclude some amount of the complementary total property. For instance, if a coat is dirty it can mean that it is stained on sleeves but the rest of the coat is clean.

Following von Stechow (2007), Heim (2008), and others we represent antonym adjectives as complements/negations of each other. The denotations of adjectives like *clean* and *dirty* are related by being complements of each other's respective scales.

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[1] Note that this type of adjective is not a predicate, <e,t>, but a function from the degrees into the function from individuals to truth values: <d<e,t>>.

[2] We put aside so-called relative adjectives. In relative adjectives, no member of an antonym pair has its standard value set independently of the context (Kennedy & McNally, 2005; Kennedy, 2007).

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In this respect we follow the old tradition in linguistics which treats antonyms as lexically related and not as syntactically decomposed in syntax.[3]

More formally, we define the relation between partial and total adjectives with respect to the standard value of the total adjective represented as the lower bound of its partial counterpart (following Rotstein & Winter 2004, contra Kennedy & McNally 2005). Crucially, the scales are partially overlapping and the impression of their antonym interpretation (not *clean* → *dirty*) comes from an interaction of their interval boundaries and their standard values. As for the denotation of partial adjectives, their standard value is determined *contextually*. Consequently, the standard value of a partial adjective has *no* structural representation:

(11) $d_P \in \overline{S_P}\ ;\ \overline{S_P}$ … closure of the partial scale

In contrast, the denotation of a total adjective defines the standard value of the total member of an adjectival pair as the lower bound of its partial counterpart:

(12) $d_T = P_{min} \in \overline{S_T}\ ;\ \overline{S_T}$ … closure of the total scale

With the formal semantics of antonym adjectives in place we can approach the question of the denotation of reduplication. The intuition is that reduplication corresponds to semantic modification, i.e., adjectives with reduplicated morphemes denote some interval close to the standard value. Since this is semantic modification, it depends on the type of the scale in the denotation of the adjective with which it combines. More formally, we argue that the denotation of reduplication corresponds to a limit function where the limit is defined as the standard value of the total adjective. Thus, our first step to the formalization can be captured as follows:

(13) $\|\text{-li-li-}\| \approx d_T$

The resulting denotation corresponds to approaching the standard value of the adjective. If we apply the denotation of the reduplication to a total adjective, for example, to *čistý* ‘clean’, we get the following outcome:

(14) $\|\text{čist'ou-li-li-}\ldots\text{nký}\| = \lambda x \exists d \left[d \approx d_T \wedge clean(d)(x) \right]$

The formalization captures the fact that the denotation of a total adjective is not a function from degrees and individuals to truth values, but instead it is a function from individuals to truth values. This stems from the fact that the degree $\boldsymbol{d_A}$ is not a context dependent variable,[4] but instead the variable is existentially closed and its value approaches the standard value of its total counterpart. Consequently, the denotation of a reduplicated adjective is no longer dependent on a context fixation of the standard value $\boldsymbol{d_A}$.

After we further abstract over the adjective, we end up with the following denotation:

(15) $\|\text{-li-li-}\| = \lambda G \lambda \exists d \left[d \approx d_T \wedge G(d)(x) \right]$

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[3] Heim (2008) claims that antonyms are not decomposed in syntax contra recent claims by Büring (2007a,b).

[4] As is the case in the denotation of relative adjectives.

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We speculate that reduplication takes the place of the covert operator **pos** which can be found in relative adjectives. There are two differences between **pos** and the reduplication morpheme: first, the reduplication morpheme does not need any comparison class from linguistic or extralinguistic context; second, the relation between the degree and the individual is a limit function, instead of ≤.[5] Even if **pos** and the reduplication morpheme both close the degree variable existentially, they do it in a different way – the operator **pos** makes the denotation of the adjective dependent on the comparison class ***C*** but the reduplication is not dependent on a comparison class at all.[6]

The proposed formalization makes certain predictions about interactions between different types of adjectives and reduplication. First of all, since reduplication is a morpho-phonological process, it may apply only to material present in the derivation.[7] What this means with respect to our data is that reduplication is possible only if the standard value is structurally represented. Consequently, we predict that reduplication applies only to total adjectives since only total adjectives have their standard value structurally represented as some value in the closure of the total scale. In contrast, the standard value of a partial adjective is determined contextually and may fall anywhere within the interval. What this means is that there is no structural representation of the standard value. Consequently, there is no material that could be used for reduplication. Thus, we have successfully derived the contrast between partial and total adjectives with respect to reduplication.

2. FURTHER EVIDENCE: CONTEXT AND THE STANDARD VALUE. Interestingly, English adverbial modification by *almost* shows similar properties to Czech adjectival reduplication. As can be seen in (16), *almost* usually combines with total adjectives but not with partial adjectives. This restriction is parallel to the restriction observed for the Czech reduplication paradigm and as such invites the question as to whether we are dealing with the same phenomenon.

(16) a. The work is almost complete/*incomplete.[8]
b. The patient is almost dead/*alive.
c. The explanation is almost clear/*unclear.

The basic observation about *almost* is that *almost* cross-categorically denotes negation of the denotation of the constituent it modifies:

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[5] We put aside also relativization to possible worlds, as we use a purely extensional framework in this article.

[6] We suppose that the different speaker standards for total adjectives come from extralinguistic factors and not from the semantics itself – e.g., the sentence *the dishes are clean*, which can be true for one speaker and false for another, is not proof of semantic context dependency.

[7] We believe this claim is fairly theory neutral. At least, we are not aware of any generative model of morpho-phonology where this reasoning wouldn't apply. In fact, this type of dependency can be easily reformulated in representational terms as well, yielding the same result.

[8] from Rotstein & Winter 2004, ex. (9).

(17) a. John almost passed the exam → John didn't pass the exam
  b. Almost every student passed the exam → Not every student passed the exam
  c. John is almost healthy → John isn't healthy

In order to account for the semantics of English *almost*, Rotstein & Winter (2004) proposed that the interval associated with the phrase *almost A* denotes degrees that are adjacent to the standard value of *A* and are in the opposite direction from the ordering of the scale associated with the adjective *A*. If we apply this denotation to our semantics of total and partial adjectives, the incompatibility of *almost* and partial adjectives can be derived in the following way. First, recall that under our semantics for total and partial adjectives, if the standard value of a partial adjective equals the standard value of a total adjective (just on the opposite scale), then the adjectives are complementary. Consequently, the partial adjective cannot be modified by *almost* because there is no complement interval between $\boldsymbol{d_P}$ and **0**.

There is an interesting prediction stemming from this formalization. One of the crucial distinctions between total and partial adjectives lies in the way their standard value is represented. While the standard value of a total adjective is structurally fixed as the lower bound of its partial counterpart, the standard value of a partial adjective is not fixed in the structure but instead is contextually dependent. What this amounts to is that in a neutral context English speakers tend to fix the standard value of a partial adjective as the minimum. However, this is not necessary. If we create an appropriate context, the standard value can be shifted further up the scale. If this happens, we create a non-empty interval between $\boldsymbol{d_P}$ and **0**. Such a shift is schematically shown in Figure 2.

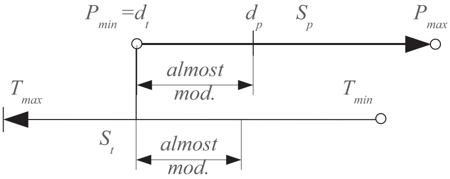

Figure 2: Modification by almost

If such an interval exists, then it should be able to feed into the denotation of *almost*. Consequently, if such modification is possible, a partial adjective should become modifiable by *almost*. This prediction is indeed borne out, as observed by Kennedy (2007). Examples in (18) and (19) demonstrate the shift.

(18) a. We need a rod that is bent in an angle of 90 degrees. Let's pick up that rod over there and bend it a little: it should be easy, as it's *almost bent* already.[9]
  b. We consider a glass dirty and wash it as soon as there are five spots on it. This glass is now *almost dirty* – it has four spots on it.

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[9] from Kennedy 2007.

(19) a. We need a TALL basketball player – one whose height is at least 1.95 meters. But we cannot take John, who is 1.90 meters – he's just *almost tall*.[10]

b. The publisher considers a book long if it's 300 pages or more. This book is *almost long* – it's 298 pages.

In the previous section we proposed that the impossibility of reduplication of partial adjectives is a direct consequence of their standard value not being structurally present. We have argued that the restriction has nothing to do with the actual position of the standard value on the scale but that instead it results from the lack of structural material available for the morpho-phonological process of reduplication. Could it be the case that in fact the denotation of the process of reduplication should be stated in terms of a complement interval exactly as the denotation of English *almost*? These two hypotheses make distinct predictions. If we follow the denotation for English *almost*, we predict that exactly as in English, reduplication of partial adjectives should improve in a context that pushes the standard value of partial adjectives further away from the minimum. In contrast, our structural hypothesis predicts that the distance between the standard value and the minimum should not make any difference: if reduplication depends on the standard value being structurally fixed, it should not matter whether or not the standard value is distinct from the minimum value. The reason is that the contextual fixation happens only later in the derivation (in the semantics/pragmatics component) and as such it cannot affect the morpho-phonological process that necessarily takes place before the pragmatic component sets the standard value. Thus, the prediction of our proposal is that even if we modify the context, reduplication of Czech partial adjectives should still fail. Interestingly, this prediction is indeed borne out, as examples in (20), modeled after Rotstein & Winter (2004), show. No matter how hard we try to modify the context, what we see is that reduplication in Czech partial adjectives, unlike *almost*-modification in English, cannot be improved.

(20) a. This glass is certainly not clean, since it has several big spots on it and I am not willing to drink from it even if you insist. The glass is simply… *_špinavou**lili**nká_ 'very very dirty'

b. This glass is certainly not dirty, since it has absolutely no dirty spots on it. The glass is simply… √ _čist'ou**lili**nká_ 'very very clean'

3. Conclusion. We have examined a surprising contrast between partial and total adjectives that emerges in a semantically driven morpho-phonological process of reduplication in Czech. While total adjectives can be reduplicated, partial adjectives cannot. This is unexpected because a formally distinct but semantically parallel process of adverbial modification does not show any such restriction. We have argued that the pattern can be explained if we adopt Yoon's and Rotstein & Winter's accounts of total and partial adjectives. They posit a *structural* difference between partial and total adjectives: Only total adjective have their standard value represented in the derivation; the standard value of partial adjectives is derived from the context. Furthermore, we have argued that antonym adjectives cannot be represented by adjacent

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[10] from Kennedy 2007.

scales but instead must be allowed to partially overlap (in agreement with Rotstein & Winter 2004, contra Kennedy & McNally 2005 and Kennedy 2007). Crucially, we have argued that the semantics of antonym adjectives must be formalized as a combination of grammatically encoded (semantics) and contextually-determined (pragmatics) meanings. Thus, in our model, the proper formalization of these two types of adjective must be represented in two components of the grammar. As we have seen in our case study, the different representations are empirically testable.

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IS SIDAAMA (SIDAMO) A MARKED-NOMINATIVE LANGUAGE?

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Abstract. This study describes the case system of Sidaama, a Highland East Cushitic language of Ethiopia, and shows that it is not a marked-nominative language, as the literature describes it, but rather is an accusative language, if a marked-nominative language is defined in terms of the unmarkedness of the accusative case. In Sidaama, unmodified nouns and adjectives in the accusative case are functionally marked; morphologically, the accusative case is also marked with a suprafix, which emerges as a high pitch on the final vowel, and the nominative case is marked with a suffix, which may or may not be zero, depending on the gender. The present study also shows how difficult it is to determine which grammatical case is unmarked in this language.

Keywords: case, marked-nominative, accusative, markedness, Sidaama (Sidamo)

Languages: Sidaama (Sidamo), Kambaata, Cushitic

The goals of the present study are (i) to provide an accurate description of the morphological case-marking system of Sidaama, which has been incorrectly or insufficiently described in the literature (e.g., Tucker 1966; Hudson 1976; Teferra 2000), and (ii) to discuss whether this language is a marked-nominative language. Researchers seem to have assumed the answer to be affirmative in cases based on the data in the literature, if it is defined in terms of the unmarkedness of the accusative case, as König (2006, 2008) claims.

Section 1 reviews previous studies on marked-nominative languages. Section 2 describes the case marking system of Sidaama. Section 3 discusses the notions of markedness and unmarkedness, especially, that of functional unmarkedness, with which previous researchers characterized the accusative case in marked-nominative languages. Section 4 concludes the paper.

1. Previous studies. According to Dixon (1994:56-58), there are two types of markedness, formal markedness (the presence of morphological marking in a linguistic form) and functional markedness (the limitations of the function of a linguistic form). Three types of morphological case marking systems, accusative, ergative, and marked-nominative systems, exhibit different patterns of marking the subject of an intransitive verb (S), the subject of a transitive verb (A), and an object (O). In a prototypical accusative system, S and A are treated the same way, and are morphologically and functionally unmarked, whereas O is morphologically and functionally marked. In a prototypical ergative system, S and O are treated the same way, and are morphologically and functionally unmarked, whereas A is morphologically and functionally marked. The marked-nominative system differs from the accusative system

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in- markedness. In this system, S and A are treated the same way, but they are morphologically and functionally marked, and O is functionally unmarked (O is often also morphologically unmarked) (König 2006, 2008). According to König, this type of language is found mainly in East Africa and only rarely in other places. It is also found in Afro-Asiatic, especially East Cushitic and Western Omotic, and in Nilotic, which is geographically close to Cushitic and Omotic. It is occasionally found in other language families.

In Dixon's (1994:63-67, 204) view, the marked-nominative system is a mixture of the accusative system and the ergative system, because S and A are treated the same way, as in the accusative system, and O is functionally unmarked, as in the ergative system. The marked-nominative system is cross-linguistically unusual in that S is both morphologically and functionally marked in this system. This is unlike the accusative and ergative systems, where S is functionally as well as morphologically unmarked. The morphological markedness of S in the marked-nominative system contradicts Greenberg's Universal 38 (1963:95): "Where there is a case system, the only case which ever has only zero allomorphs is the one which includes among its meanings that of the subject of the intransitive verb." The functional markedness of S in the marked-nominative system is also incompatible with the fact that citation forms are usually the same as the forms for S.

König (2006, 2008) argues that there are two types of marked-nominative languages, one where the accusative case has no morphological marking, and the other where the accusative case has morphological marking, as in Table 1, with the former type being far more common than the latter.

Markedness **Case-marking system**	**Morphological markedness**			**Functional markedness**		
	Syntactic Function			**Syntactic Function**		
	A	**S**	**O**	**A**	**S**	**O**
Ergative (prototype)	**marked**	**unmarked**		**marked**	**unmarked**	
Marked-nominative	**marked**		**unmarked or marked**	**marked**		**unmarked**
Accusative (prototype)	**unmarked**		**marked**	**unmarked**		**marked**

Table 1: Morphological and Functional Markedness of A, S, and O.[1]

Thus, the accusative case may be morphologically unmarked or marked in marked-nominative languages. However, it is functionally unmarked in either type of marked-nominative language. Therefore, according to König, it is primarily the functional markedness of the accusative case rather than its formal unmarkedness that defines marked-nominative languages. König characterizes functionally unmarked forms of nouns as those that are likely to be used as their citation forms, to be used in predicates, and to be used as default forms in various situations (for example, used for case doubling, possessor in possessive constructions, and indirect object).

König (2006, 2008) seems to regard Sidaama as a marked-nominative language of the type with a morphologically unmarked accusative case, based on Tucker's description, which in turn seems to derive the information from Moreno (1940): "The Absolute form of the Noun is in the Accusative; both Nominative and Genitive sometimes have the Suffix *-i* or *-u*" (Tucker 1966: 514). However, this description of the accusative in Sidaama is incorrect, as will be seen.

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[1] After König 2006, 2008

2. CASE MARKING SYSTEM OF SIDAAMA. Sidaama belongs to the Highland-East branch of the Cushitic language family (Kawachi 2007a, 2007b, 2008, 2011, 2012 a, b, 2013), which, in addition to Sidaama, includes Hadiyya, Kambaata, Gedeo (Darasa), and Burji. Speakers of Sidaama are in the Sidaama Zone, whose capital, Hawassa, is located 273 km (170 miles) south of Addis Ababa. According to the 2007 Ethiopian Census, the population of the Sidaama people is about 2.9 million.

The syllable structures attested in Sidaama are V, VC, CV, and CVC. In this language, two consecutive different vowels (e.g., [ai]) are interpreted as a sequence of two different vowel phonemes (e.g., /a/+/i/) constituting two syllables, rather than as a diphthong. Similarly, a long vowel (e.g., [a:]) is also interpreted as a sequence of two identical vowel phonemes (e.g., /a/+/a/) constituting two syllables.

Sidaama follows SOV word order, though OSV and other orders are also possible in some discourse contexts. It is a suffixing language and uses suffixes and suprafixes for case marking (cf. section 2.1). Whether suffixed or not, all words end in a vowel. The attributive adjective agrees with the noun phrase in case, number, and gender.

This section describes the case-marking system of Sidaama. Section 2.1 examines the morphological marking of the nominative and accusative cases and section 2.2 looks at whether the accusative case can be regarded as functionally unmarked.

2.1. MORPHOLOGICAL MARKING OF NOMINATIVE AND ACCUSATIVE CASES. In Sidaama, nouns in the nominative case can be marked with a suffix, depending on the gender of the noun. Adjectives may be marked with a suffix, depending on the gender of the noun modified. Because nouns and adjectives in the accusative case carry no suffix, the case-marking system of this language may look like marked-nominative. In fact, this is the assumption made in previous studies, which describe the accusative case as morphologically unmarked, under the label "absolute" (e.g., Hudson 1976, Sasse 1984) or "absolutive" (e.g., Tosco 1994, Teferra 2000). However, the accusative case is actually marked with high pitch on the final vowel of both nouns (unmodified common nouns and proper nouns) and adjectives.

Section 2.1.1 describes the pitch-accent patterns of nouns and adjectives and shows that, unlike the nominative, the accusative is marked with a suprafix. Section 2.1.2 describes the nominative case suffix, which occurs only on masculine nouns and adjectives modifying masculine nouns.

2.1.1. PITCH-ACCENT PATTERNS AND THE ACCUSATIVE CASE SUPRAFIX. Most previous studies on Sidaama have assumed that it is a stress language, where stress usually falls on the penultimate syllable of a word (Hudson 1976:248-49, Wedekind 1980:137-40, Teferra 2000:16). However, Sidaama is actually a pitch-accent language, where prominence is indicated by a high pitch rather than stress. The location of high pitch in a word is predictable, and high pitch is not associated with the duration of a vowel.

In Sidaama, a high pitch is normally assigned to the penultimate vowel segment (i.e., the vowel of the penultimate syllable) of the citation form of a noun or adjective (e.g., *sú'.ma* 'name', *sál.to* 'bowel', *bal.gú.da* 'ostrich', *dán.ča* 'good', *múl.la* 'empty'). When the penultimate syllable consists only of a vowel, and the antepenultimate syllable ends in the same vowel, the vowel of the penultimate syllable is more prominent than that of the antepenultimate one (e.g., *ka.á'.lo* 'help', *ku.ú.la* 'blackish blue', *se.é.da* 'long'). When the ultimate syllable consists only of a vowel, and the penultimate syllable ends in the same vowel, the vowel of the penultimate syllable is more prominent than that of the ultimate one (e.g., *hun.ké.e* 'sweat', *me.á.a* 'woman', *ro.dó.o* 'sibling').[2] When the penultimate syllable starts with, or consists only of, a vowel, and the antepenultimate syllable ends in a different vowel, the vowel of the penultimate syllable, rather than that of the antepenultimate one, has a high pitch (e.g., *ba.íč.čo* 'place', *ha.í.t'e* 'barley').

Nouns and adjectives shift their pitch-accent patterns, depending on their syntactic environment in a sentence. Like their citation forms, their nominative forms have high pitch on their penultimate vowel segments, as in *beétto* in (1a), *beétt-u* in (2a), *búša* in (1b), and *búš-u* in (2b). In fact, *beétto* in (1a) and *búša* in (1b), which are not suffixed, have the same forms as their citation forms.

(1) (a) *beétto*/(b) *búša beetto* *dag-g-ú.*
child.NOM.F/bad.NOM.F child(NOM.F3.mod) come-3sg.f-r.prf.3sg.f
'(a) The girl/(b) The bad girl came.'

(2) (a) *beétt-u*/(b) *búš-u beett-i* *da-ø-í.*
child-NOM.M/bad-NOM.M child(NOM.M.MOD) come-3SG.M-R.PRF.3SG.M
'(a) The boy/(b) The bad boy came.'

On the other hand, a high pitch occurs on the final vowel segments of nominal and adjectival stems as a suprafix when they are in the accusative case, as in *beettó* in (3a) and *bušá* in (3b).[4]

(3) *íse* (a) *beettó*/(b) *bušá beetto* *la'-'-ú.*
3SG.F.NOM child.ACC/bad.ACC child(ACC.mod) see-3SG.F-R.PRF.3SG.F
'She saw (a) the child/(b) the bad child.'

Note that when a noun is modified by an adjective, a demonstrative, a genitive noun phrase, a relative clause, or some combination of these, the modified noun has a flat pitch accent, regardless of the case of the NP, like *beetto* in (1b) and (3b) and *beett-i* in (2b).

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[2] When such a word is a masculine noun and is in the nominative case, the quality of its final long vowel is replaced by that of the nominative suffix (*-u* or *-i*), and the final long vowel becomes *-úu* or *-íi* (e.g., *rod-úu* [sibling-NOM.M]).

[3] ABBREVIATIONS. D.PRF: distant perfect, LV: lengthened vowel, mod: (syntactically) modified, MOD: Modified (modified by modifier(s) and/or accompanied by the possessive pronominal suffix), R.PRF: recent perfect

[4] This pattern applies also to personal pronouns (e.g., *áni*/*ané* '1SG NOM/ACC', *íse*/*isé* '3SG.FEM NOM/ACC') and demonstratives (e.g., *tíni/tenné* 'this (FEM) NOM/ACC', *hákku/hakkonné* 'that (MASC) NOM/ACC').

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2.1.2. NOMINATIVE CASE SUFFIX. The nominative case suffix on adjectives takes the form of -*u* as a replacement for the final vowel of their stem, which is *e*, *a*, or *o*, when the noun that they modify is masculine and is in the nominative case, as *búš-u* in (2b). Otherwise, the nominative case suffix on adjectives is zero, and the adjectives take their citation forms, as *búša* in (1b).

On the other hand, the nominative case suffix on nouns can have different forms, depending on three factors: (i) the gender of the noun or that of the referent of the noun phrase, (ii) whether the noun is common or proper, and (iii) (in the case of a common noun) whether the noun is Modified by another element.

In Sidaama, noun phrases are sensitive to whether a modifier or the possessive proanominal suffix, or neither, accompanies the noun.[5] Note that modification, normally a syntactic notion, has to be used here in a sense specific to Sidaama common nouns, and it is capitalized as **Modification** (and its related forms are also capitalized whenever the distinction is relevant, as in: Modified, Unmodified, Modify, and Modifier). Though affixation is not modification and nouns are not described as modified (in the ordinary sense) by an affix, Sidaama common nouns accompanied by the possessive pronominal suffix behave the same way in the selection of allomorphs of the nominative case suffix (and also two other case suffixes) as those that have dependents (in other words, those modified (in the ordinary sense) by genitive NPs or adnominals). These Modified common nouns behave differently from Unmodified common nouns, namely those with neither a dependent nor the possessive pronominal suffix. Thus, the use of the possessive pronominal suffix on a common noun counts as Modification of the noun.

As shown in Table 2, only masculine common nouns and *a*-ending masculine proper nouns can be marked with the nominative case suffix, which replaces the final vowel of the basic stem of the noun, which is *e*, *a*, or *o*. The nominative suffix is -*u* for Unmodified, masculine common nouns, as *beétt-u* in (2a). It is -*i* for Modified, masculine common nouns, as in *beett-i* (2b), which is modified by *búš-u*, or *beétt-i-se* in (4a), which is Modified by the third-person singular feminine pronoun, and for masculine proper nouns ending in *a*, as in *dangúr-i* in (4b).

Noun types	**Common nouns**		**Proper nouns**	
	Unmodified	**Modified**	**ending in a**	**ending in e or o**
Masculine	-*u*	-*i*	-*i*	unmarked
Feminine	unmarked			

Table 2: Different Forms of the Nominative Case Suffix on Nouns.

(4) (a) *beétt-i-se*/(b) *dangúr-i* *sagalé*
child-NOM.M.MOD-3SG.F.POSS/Dangura-NOM.PROP.M food.ACC
beettó-te *u-ø-í.*
child-DAT.F give-3SG.M-R.PRF.3SG.M
'(a) Her son/(b) Dangura gave the food to the girl.'

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[5] They make several grammatical distinctions (e.g., allomorphs of a case suffix) in terms of this criterion (Kawachi & Tekleselassie 2012).

Note that all feminine nouns (e.g., *beétto* in (1a), *beetto* in (1b)) and *e*- or *o*-ending masculine proper nouns (e.g., male names such as *garsamo*, *laammiso*, *suwe*, and *bassabbe*) are not marked for the nominative case. Also, the nominative forms of (syntactically) unmodified feminine nouns or nouns denoting feminine entities (e.g., *beétto* in (1a)) and *e*- or *o*-ending masculine proper nouns, which have a high pitch on their penultimate vowel segments, have the same forms as their citation forms.

2.2. Functional markedness of the nominative and accusative cases. As mentioned in section 1, König (2006, 2008) states that functionally unmarked forms have a wide variety of uses and frequently appear as citation forms and in predicates. In a marked-nominative language, the accusative case is functionally unmarked, and accusative forms show these properties.

However, in Sidaama the accusative case is functionally marked, and thus this language cannot be regarded as a marked-nominative language if the functional unmarkedness of the accusative case distinguishes this type of language from an accusative language. In Sidaama, the citation forms of common nouns and adjectives are also used as predicates directly followed by the predicative noun-phrase clitic (FEM: *=te*), as in (5a) and (5b).[6] (Note that its masculine form is = *ho.)* If functionally unmarked forms of nouns are the citation forms or predicate forms, they are never the same as their accusative forms. Therefore, it is not appropriate to call the accusative case in Sidaama “absolute” or “absolutive”. The citation and predicate forms of Unmodified feminine nouns and *e*- or *o*-ending masculine proper nouns are exactly the same as their nominative case forms.

(5) *tií’i* (a) *beétto=te* / (b) *búša=te.*
that.one.over.there (FEM) child=PRED.F / bad=PRED.F
‘That one (FEM) over there (a) is a girl/(b) is bad.’

However, the citation forms of other types of nouns (all Unmodified masculine common nouns and some masculine proper nouns) share the same pitch pattern, but are different in form from their nominative case forms, which are suffixed with *-u* or *-i*.

The citation and predicative forms of adjectives (e.g., *búša* ‘bad’, *búša=te* in (5b)) are also different from their accusative forms (e.g., *bušá* in (3b)). Their citation and predicative forms are identical in form with their nominative case forms when the noun that they modify is feminine and in the nominative case, as in *búša* in (1b), though their citation forms are different from their nominative case forms marked with the nominative case suffix *-u*, which are used when the noun that they modify is both masculine and in the nominative case, as in *búš-u* in (2b).

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[6] When a noun modified by an adjective is used as a predicate, the adjective has a high pitch on its penultimate vowel segment, and the noun has a high pitch on its ultimate vowel segment with this vowel segment lengthened, and is followed by the noun-phrase clitic for Modified nouns and proper nouns, *=ti* (e.g., in (5), the predicate can be replaced by *búša beettó-o=ti* [bad.PRED child-LV=PRED.mod] to mean ‘That one (FEM) over there is a bad girl.’).

Therefore, the accusative forms of nouns and adjectives are always different from their citation and predicative forms, whereas their nominative forms may or may not correspond to their citation and predicative forms.

3. DISCUSSION. This section considers the notions of formal or morphological markedness and functional markedness in the Sidaama case marking system and points out that the unmarkedness cannot be invariably associated with either the nominative or accusative case in this language.

The notion of formal markedness seems to be straightforward for case marking with a suffix. The nominative case is marked with a suffix on masculine common nouns and *a*-ending masculine proper nouns, whereas it is not marked with a suffix on other types of nouns. The accusative case is not marked with a suffix at all.

However, the notion of formal markedness is tricky in regard to case marking with pitch accent. Obviously, noun or adjective forms with the accusative suprafix are morphologically marked. On the other hand, it is difficult to determine which pitch accent pattern is morphologically unmarked. Those forms with a high pitch on the penultimate vowel segment may be regarded as morphologically unmarked because they are the same as their citation and predicate forms, which can be regarded as having no morphological marking, and thus as a basic form. However, those forms with a flat pitch accent, which nouns and adjectives take when (syntactically) modified, could also be considered morphologically unmarked because of the absence of a high pitch on them.

The notion of functional markedness in the Sidaama case marking system is also problematic. Although there are forms of a particular word that are functionally marked compared to its other forms, its functionally unmarked form is difficult to identify. Clearly, nominative forms of masculine common nouns, proper nouns ending in *a*, and adjectives modifying masculine nouns, which carry the nominative suffix *-u* or *-i*, are functionally marked because they are different from their citation and predicative forms and can only be used as S or A. Similarly, unmodified nouns and adjectives in the accusative case, where a high pitch occurs on their final vowel segments, are functionally marked. They are different from their citation and predicative forms, and the accusative case is restricted to the marking of O, though it matches the form of the oblique case in this language, which is used for a bare NP adverbial for the goal of motion, as in (6a), and for the possessum noun in the oblique possessum external possessor construction, as in (7).

(6) *íse* (a) *t'awó*/(b) *min-í-si-ra* *haɗ-ɗ-ú.*
3SG.F.NOM field.OBL/house-GEN.M.MOD-3SG.M.POSS-ALL go-3SG.F-R.PRF.3SG.F
'She went (a) to the field/(b) to his house.'

(7) *beétt-u* *lekká* *t'ur-ø-í.*
child-NOM.M foot.OBL become.dirty-3SG.M-R.PRF.3SG.M
'The boy's feet became/are dirty.'
(*lit.*, 'The boy became dirty with respect to the foot.')

Accusative forms cannot be used as the default form in any of those situations where König (2006, 2008) states functionally unmarked forms are used. First, when two case markers occur in the same noun, its genitive form serves as the base for the other case maker. The case markers that attach to a genitive base include the allative suffix, the ablative-instrumental suffix, and one of the allomorphs of the dative-locative suffix. For example, in (6b), the allative suffix *-ra* attaches to the genitive base *min-í-si*. Second, possessors are expressed with the genitive case or with the possessive pronominal suffix in the internal possessor constructions, where the possessor is internal to the noun phrase whose head is the possessum (i.e. the possessor is a dependent of the possessum). Sidaama has two types of external possessor constructions, where the possessor is in a constituent external to the NP whose head is the possessum (i.e. the possessor is not a dependent of the possessum) (Kawachi 2012b, 2013). In one type, dative possessor external possessor constructions like (8), the possessor noun phrase is in the dative case.

(8) *beettó-ho* *lékka* *t'ur-t-ú.*
child-DAT.M foot.NOM.F become.dirty-3SG.F-R.PRF.3SG.F
'The boy's feet became/are dirty.'
(*lit*., 'To the boy, the feet became dirty.')

In the other type, the oblique possessum external possessor construction, which is exemplified in (7), the possessum noun phrase is in the oblique case, but the case for the possessor noun phrase depends on its syntactic relation. Thus, the accusative case is used for a possessor only when the possessor noun phrase happens to be the object of the verb in this construction (e.g., '*lit*., He washed the child with respect to the foot.' to mean 'He washed the child's feet.'). Third, the indirect object is always in the dative case, as in (4).

Unlike these forms with the nominative suffix or the accusative suprafix, forms of nouns and adjectives with a high pitch on their penultimate vowel segments and without any suffix seem to be functionally unmarked. As discussed above, they are used as citation forms and occur in predicates. They can also be used as a vocative form (e.g., *mánna.* 'People.', *dangúra.* 'Dangura.') or for a bare NP adverbial for a location, as in (9a).[7]

(9) *íse* (a) *míne* / (b) *ros-ú mine* *no.*
3SG.F.NOM house.LOC / education-GEN.M house.LOC.mod come.to.be.located-D.PRF.3
'She is (a) at home (b) at school.'
(*lit*., 'She came to be located (a) at home (b) at school.')

However, other than when used as citation and predicative forms, noun and adjective forms with a high pitch on their penultimate vowel segments and without any suffix have only these uses.

On the other hand, forms of nouns with a flat pitch accent could also be considered functionally unmarked forms of modified nouns, though they occur in a smaller

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[7] The vocative forms of nouns are different from their nominative forms. However, the vocative forms of pronouns are the same as their nominative case forms (e.g. *áti.* 'You (SG).', *duučúnk-u/wo'múnk-u/duučúnk-u/baalúnk-u.* 'Everybody.').

range of other environments than noun and adjective forms with a high pitch on their penultimate vowel segments.[8] A flat pitch accent is used for citation forms of modified nouns (e.g. *mine* in *ros-ú mine* (education-GEN.M house) 'school'). Flat pitch also occurs in a modified noun as part of a bare NP adverbial for a location, as in *mine* in *ros-ú mine* in (9b). Therefore, one could say that functionally unmarked forms are forms with penultimate pitch accent in the case of unmodified nouns and adjectives, and are forms with final pitch accent in the case of modified nouns.

However, although König (2006, 2008) characterizes a marked-nominative system in terms of the functional unmarkedness of forms that are in a particular grammatical case (i.e., the nominative or accusative) rather than that of forms that have a particular shape, it is almost impossible to decide which grammatical case is unmarked in Sidaama. There are no case forms that can be consistently regarded as either morphologically or functionally unmarked. If forms with a high pitch on the penultimate vowel segment are morphologically unmarked, nominative case forms of unmodified nouns and adjectives are unmarked when the noun is feminine, but are marked with a suffix when the noun is masculine. If forms with a flat pitch accent are morphologically unmarked, modified nouns in the nominative case and those in the accusative case are both unmarked; however, unmodified nouns and adjectives are marked in all grammatical cases.

There are no case forms that are functionally unmarked, either, though citation and predicate forms of unmodified nouns and adjectives may be regarded as functionally unmarked. Nominative case forms of all masculine common nouns and *a*-ending masculine proper nouns, which are suffixed with *-u* or *-i*, and have a high pitch on their penultimate vowel segment (unmodified masculine common nouns and *a*-ending masculine proper nouns) or a flat pitch accent (modified masculine common nouns), are different from their citation and predicate forms. They have no other function. Nominative case forms of modified feminine nouns, which have a flat pitch accent, cannot be used in predicates, but can be used as their citation forms, and can occur in other grammatical cases. Nominative case forms of unmodified feminine nouns and masculine proper nouns ending in *e* or *o*, which are not marked with a suffix and have a high pitch on their penultimate vowel segment, are identical with their citation and predicate forms, and have a few other functions. However, the nominative case cannot be regarded as consistently either marked or unmarked, and its markedness depends on the type of the noun and modification.

There are no reports of the indeterminacy of which grammatical case is functionally unmarked in Sidaama or any other Highland East Cushitic language. Treis (2008) treats Kambaata as a marked-nominative language. According to her, in this language the accusative form of a word, which can serve as an adverbial, is used as its citation form, unlike in Sidaama. Nevertheless, as in Sidaama, the accusative form is segmentally the same as but differs in pitch pattern from the predicate

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[8] For example, unlike common noun and adjective forms with a high pitch on their penultimate vowel segments, forms of nouns with a flat pitch accent cannot occur as predicates (see footnote 6).

form – in the accusative form, the final syllable is accented, and in the predicate form, the penultimate syllable (the penultimate vowel segment) is accented. Thus, unlike Sidaama, where the citation form and the predicate form are usually the same and differ from the accusative form, the accusative form and the citation form in Kambaata are the same in most cases and differ from the predicate form. Another difference is that the nominative is always different both from the accusative/citation form and the predicate form in Kambaata, unlike in Sidaama, where the nominative form can be the same as the citation and predicate form.

It may be that unlike the other Highland East Cushitic languages, only Sidaama is an accusative language. According to Sasse (1984) and Tosco (1994), marked-nominative languages in East Cushitic developed from the accusative type. During this development, the suffix *-*i*/*u*, which may have been a topic or definiteness marker, became a nominative marker, whereas there used to be a focus marker, *-*a*, which later came to be used as an accusative suffix, and then became zero.[9] If this applies to Highland East Cushitic, and if Highland East Cushitic other than Sidaama are marked-nominative languages, Sidaama still seems to be close to the accusative prototype. Nevertheless, there may be a change happening in modified nouns in Sidaama. That is, (syntactically) modified nouns normally have a flat pitch accent, and their accusative forms, which have no suffix, seem to be morphologically as well as functionally less marked than their suffixed nominative forms.

Another possibility is that like Sidaama, the other Highland East Cushitic languages except Kambaata are not marked-nominative languages, either. Previous studies on Highland East Cushitic may have neglected the accusative suprafix. A few researchers (e.g., Hudson 1976:253, Sasse 1984) report that in Highland East Cushitic languages including Sidaama, which they claim to be marked-nominative languages, nominative and accusative forms can be the same. However, if this were the case, confusion would occur between A and O in those languages where SOV and OVS word orders are possible. It may be that they are actually accusative languages, where O is marked with the accusative suprafix and is functionally marked. This is different from marked-nominative languages in East Cushitic, where the nominative and accusative cases are unambiguously distinguished (e.g., by means of different tone patterns in Somali (Saeed 1993); by the use of a nominative suffix in Oromo (Owens 1985)), regardless of the noun type, and the accusative is morphologically as well as functionally unmarked.

Thus, researchers on the case systems in Highland East Cushitic languages other than Sidaama and Kambaata need to carefully investigate (i) whether the accusative form is the same as the citation form (as in Kambaata but not in Sidaama), (ii) whether the nominative form can be the same as the citation form (as in Sidaama but not in Kambaata), and (iii) whether unmarkedness can be associated with the accusative or nominative case.

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[9] Before the accusative case marker became zero, it might have gone through the stage of a suprafix (e.g., *-*á*).

4. CONCLUSION. The present study shows that Sidaama is not a marked-nominative but an accusative language, if the defining criterion for a marked-nominative system is the unmarkedness of the accusative case. It has also pointed out the problem of indeterminacy as to which case forms are unmarked.

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IV

Pragmatics

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TOWARD A LOGIC OF PERFORMATIVES: THE CASE OF REQUESTIVES

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Abstract. This paper examines the idea that inference relations can hold between performative sentences and looks at two alternative approaches to a logic of such inferences: an approach that makes a sharp distinction between competence and performance and then develops the outlines of a logic for a competence theory of performatives; and a theory that focuses instead on the use of language, and then develops a logic of speech acts. Both of these approaches are then looked at in the context of a larger theory of pragmatics. The paper concludes that the competence approach offers a better foundation for a pragmatic theory than does the speech act approach.

Keywords: Semantics, Speech Acts, Performatives, Logic, Entailment

Languages: English

The point of this paper is to put into the context of more recent developments in speech act theory one of the central themes of Katz's *Propositional structure and illocutionary force; A study of the contribution of sentence meaning to speech acts* (1977). This theme is the development of a logic of both constatives and performatives from within Katz's semantic theory. The logic would account for the inference relations between the two types of sentences. According to Katz (1977:5), "the sentences between which valid implications can hold are not restricted to those that can be either true or false, but include all the performative sentences in a language." Much later in this text he gives the following among several other examples to illustrate entailment relations between performatives (Katz 1977:232):

(1) I advise you to buy some tables and chairs.

(2) I advise you to buy some furniture.

While Katz (1977) develops a large number of the foundational elements of a logic of performatives for his semantic theory, it does not finish the job. However, more recent work in speech act theory, most of which is generally unfavorable to Katz's approach, nevertheless suggests important guidelines for developing such a logic of performatives. Principle among these is Daniel Vanderveken's monumental two-volume work in developing a logic for John R. Searle's speech act theory. Like Katz, Vanderveken believes that it is essential for logic to account for implications involving performatives.

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He says (Vanderveken 1990:60):

> For example, it [a logical theory of language] must also derive valid inferences for the following:
>
> Please, if you go to the bedroom, do not smoke there!
> I advise you to go to the bedroom.
> Do not smoke there!

It is useful to look at these two approaches to a logic of speech acts in the light of Jacob L. Mey's work (2001) in pragmatics, which, while in some respects contradicting the approaches of both Katz and Searle, does nevertheless provide us with the important goal of casting a larger net for a logical theory of performatives or speech acts, one that will include the larger social context of what Mey calls "situated utterances."[1] Katz's approach to the logic of performatives abstracts away from language use, restricting itself to meaning based on linguistic competence as opposed to linguistic performance; on the other hand, the approach of Searle and Vanderveken embraces language use, essentially developing a theory of utterance meaning for speech acts. It seems fair to ask, then, which of these two approaches, the competence meaning approach or the utterance meaning approach, is better suited as the basis for a logic of performatives that will take into consideration the wider pragmatics of situated utterances.

1. DEVELOPING CRITERIA FOR PERFORMATIVES. J. L. Austin (1962:5) was the first to point out that utterances like the following are not appropriately considered to have truth values—to be either true or false.

(3) I give and bequeath my watch to my brother (as occurring in a will).

(4) I bet you sixpence it will rain tomorrow.

Rather, they both involve doing something, in the first case bequeathing something to a survivor, and in the second making a bet. Austin called utterances like these performatives, and distinguished them from utterances of sentences like "it is raining," which, unlike performatives do indeed have truth values because they describe a state of affairs in the world. He referred to the utterances that have truth values as constatives. However, after failing to come up with a satisfactory set of criteria for distinguishing between constatives and performatives, he developed another set of distinctions between three kinds of speech acts that are involved in every utterance:

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[1] Sperber and Wilson's relevance theory, a "model of ostensive-inferential communication" (Sperber & Wilson 1986:59) offers an alternative to Mey's theory of pragmatics that is more restricted in its scope in that "considerations of culture and society are notably absent in the characterizations of individuals' cognitive environments" (Talbot 1994:3526). Moreover, perhaps partly as a consequence of this exclusion of matters having to do with culture and society, Sperber and Wilson (1986:243) claim that "the vast range of data that speech act theorists have been concerned with is of no special interest to pragmatics." In contrast, Mey (2006:94) thinks that "one should ask how a speech act functions in society" and goes even further into investigating cross-cultural differences in the use of speech acts. Mey's theory of pragmatics thus seems better suited than relevance theory for this brief look at the logical aspects of speech acts or performatives.

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a locutionary act (the act **of** saying something), an illocutionary act (the act **in** saying something), and a perlocutionary act (the act **by** saying something). Interestingly enough, it is the illocutionary acts, the kind most resembling his original notion of performatives, that have received the most attention in later developments of speech act theory.

In *Propositional structure and illocutionary force*, Katz developed a set of semantic criteria for distinguishing between constative and performative sentence types based on his conception of semantic markers and the readings of the sense structures of sentences. Elsewhere I have summarized informally Katz's criteria for a sentence to have a performative sense as follows:

> **Definition #1:** The reading of a performative sentence type has a component that specifies a sentient agent doing something that has a nature and a purpose. The nature of the agent's act is physical—namely the articulation of a proposition that carries information—and also psychological—namely the intention of the agent to thereby try to get the addressee to understand this proposition. The purpose of the act depends on the particular performative verb used. For the proposition to be performative the agent reading must be the concept of the speaker of the sentence, and the time of the act must coincide with and be restricted to the speech point of the sentence (Gonsalves 2004:139).

Using this definition we can easily see that the readings of sentences (3) and (4) will qualify them as performatives. It is noticeable that the criteria that failed Austin in his efforts to secure a distinction between constatives and performatives had to do with grammatical features of the syntax of sentences such as the indicative mood, a first person subject, and the simple present tense. In definition 1, however, what we have are criteria that have to do with the meaning of the sentence instead of its grammatical syntactic features.

Now consider the following utterances:

(5) There is a bull in the field—said by one friend to another as a warning.

(6) Will you please pass me the salt?—said at the dinner table as a request.

In order to account for so-called indirect performatives such as these, in which either, as in (5), a constative sentence is uttered with the meaning of a performative, or as in (6), a certain type of performative sentence, here a question, is uttered with the meaning of another type of performative, here a request, Katz (1977:16) developed the following definition of a function PRAG which formalizes in general terms the way in which a pragmatic component might account for the utterance meanings of sentence types.

(7) $\text{PRAG}(D(S_i),I(C(t))\ ) = \{R_1, \ldots, R_n\}$

What the function PRAG does is that it takes as input grammatical and semantic information about the sentence type, $D(S_i)$, together with information about the use of the sentence type in a specific context, $I(C(t))$, and gives as output a set of readings for the meaning of the use of the sentence in that context, $\{R_1, \ldots, R_n\}$. This PRAG function would appropriately transform (5) into a warning and (6) into a request. Of course, the function PRAG is like a promissory note here, suggesting a pragmatic theory that was barely being developed, mostly perhaps on the basis of the work of Paul

Grice on conversational implicatures at that time. My suggestion is that a more fully developed pragmatic theory, such as the one outlined by Mey, could be thought of as substituting for PRAG here, providing the sentence readings that take into account both the local and larger social context of the utterance of the sentence.

2. THREE APPROACHES TO SPEECH ACT THEORY. Now consider sentence (8):

(8) Jeffrey, will you please read the poem?

Let us suppose that this sentence is uttered by a teacher speaking to a student in a class of about twenty students on an occasion when the activity in which the class is engaged requires the students from time to time to read portions of various texts out loud. However, let's imagine that on this specific occasion when addressed in this way and asked to read the poem, the student so addressed, instead of reading the poem out loud, reads it quietly to himself.

I would like to use this situation and narrative first to illustrate each of the three different approaches to the theory of speech acts already mentioned. The first approach, based on Searle & Vanderveken (1985), I will refer to as the use theory of speech acts. This approach is the one that is most closely related to the work of the originator of speech act theory, J. L. Austin, in the sense that it builds directly on Austin's analysis of speech acts generally, and in particular on his analysis of what he called illocutionary acts, which he described as the speech act performed **in** saying something. For example, we might say that in uttering (8) the teacher was performing the illocutionary act, in the terminology of Vanderveken, of directing the student to do something. (Katz uses the alternative name **requestive** for this category of illocutionary acts.) Even though here the teacher uses a question, this counts eventually as a directive in the context described on the basis, perhaps, of conversational maxims. Vanderveken (1990:75) asserts that he will "not multiply unnecessarily literal meanings and semantic ambiguity, but will appeal as much as possible to conversational maxims and conversational background." So sentence (8) has the literal meaning of a regular interrogative, which "strongly entails an imperative sentence" (Vanderveken 1990:149). The imperative entailed by (8) would be something like "Please tell me whether you will read the poem." However, it would seem that some conversational maxim will transform the initial question into a regular request to read the poem. So this utterance of sentence (8) ultimately succeeds in carrying out what Vanderveken calls the directive illocutionary point in this context. We will refer to the Searle and Vanderveken approach as the use theory of speech acts, because it seems to owe much of its strength to the use theory of meaning, according to which, in a nutshell, the meaning of a sentence is to be determined by how it is used in a context in which a person utters the sentence to someone else.

The second approach, based on the work of Katz, I will refer to as the competence theory of speech acts. Katz (1977) developed his theory of speech acts in its most complete form, at least in part as a response to Searle (1969). I will refer to Katz's approach as the competence theory of speech acts, because it restricts itself to the competence side of the competence/performance distinction of Chomsky (1965). While what determines meaning in the use theory of speech acts is the use of sentences in real contexts, what determines meaning in the competence theory of speech acts is the conceptual structures that make up the senses of sentences in a compositional manner from the senses of its words and phrases, as determined by the semantic competence that is part of the ideal speaker-hearer's linguistic knowledge. So as far as the competence theory of speech acts is concerned, (8) is simply a question, asking Jeffrey to predict whether or not he will read the poem, a natural answer to which is either "Yes" or "No." Katz also considers questions to fall under the general category of requestives, because they request an answer. But because of the peculiar nature of their request, questions are placed in the special category of Erotetic Requestives (Katz 1977:205). What happens then in the case of sentence (8) in our classroom scenario is that the pragmatic function PRAG in (7) will convert the erotetic requestive, which has the satisfaction condition of an appropriate answer, into a more ordinary requestive which has instead the satisfaction condition that "the requestee's behavior falls under the concept represented by the reading that substitutes for" the complement predicate (Katz 1977:156)—which in (8) is "read the poem."

But PRAG does something else for us here. In the context of the classroom where the manner of reading, namely out loud, is part of the practice of the class, a feature of the context of the use of (8) here, PRAG adds the concept of reading out loud.

The third approach, which is perhaps best represented by the work of Jacob L. Mey, I will refer to as the pragmatic theory of speech acts. This approach can be seen as reacting to what Mey sees as the limitations of Searle's use theory of speech acts. This approach is spelled out and made accessible through Mey (2001). While Searle's approach focuses on outlining the rules governing the successful performance of various categories of individual illocutionary acts performed by an individual user in a specific context, the pragmatic approach begins with the larger social and cultural context influencing the language user, and focuses mostly on the social and cultural forces affecting the language user in the situation in which the speech act occurs. It focuses on the constraints and choices facing the language user in a particular situation. Mey is concerned with situated speech acts, where the larger social situation surrounding the speech act is what determines what is happening in that situation. In (8), for example, the social situation of the classroom and issues of power regarding the relationships among the students and between the students and the teacher would be considered crucial to a pragmatic analysis.

A quick look at how each of these three approaches fares with respect to our classroom scenario suggests that the pragmatic theory seems to have the most to offer in terms of giving us the full picture of what is going on in the situation. According to Mey, a generalized pragmatic act is referred to as a pragmeme, and a specific instantiation of a pragmeme is called a pract. Further, "since no two practs ever will be identical, . . . every pract is at the same time an allopract." In the terminology of the theory then, I am not sure what pragmeme is being exemplified by the actions of the student Jeffrey in the classroom scenario, but one possible candidate, cited by Mey, is Dennis Kurzon's pragmeme of incitement. According to Kurzon (1998:28, quoted in

Mey 2001:221), "any utterance may constitute an act of incitement if the circumstances are appropriate to allow for such an interpretation." In the classroom scenario, the fact that Jeffrey reads quietly to himself might suggest that there is no utterance and so no incitement. However, body language is an important aspect of pragmatics, and it is discussed and illustrated by Mey at some length. In the classroom scenario let's suppose that Jeffrey indicates his quiet reading by looking down for some time at the page with the poem, and then glancing up to look again at the teacher when he is supposedly done with his reading. So these movements of the student Jeffrey, in response to the teacher's request, could be interpreted in this scenario as constituting an allopract of the pragmeme of incitement. Of course, in order to come up with a more reliable conclusion as to what pragmeme is involved here we would probably need more information about the background of the scenario, information that would help us to situate Jeffrey in the social context of the classroom. Nevertheless, clearly the pragmatic approach seems to have the promise of delivering insight into real world language-based interactions.

Turning to Searle and Vanderveken's use theory of speech acts we see first, as already mentioned, that this approach will eventually interpret (8) as a regular directive, a request to read the poem. In fact, both Vanderveken's logical theory and Katz's competence theory start by assigning (8) the literal meaning of a question, and then, relying on conversational maxims or aspects of pragmatics, derive the intended meaning of a request to read the poem. However, that is essentially the end of the story for both of these approaches: while Austin provides the concept of a perlocutionary act, which is the act of having an effect on the addressee, this is not developed at any great length in the work of Katz, Searle, or Vanderveken, where the focus is understandably on illocutionary acts.

Katz's competence theory of speech acts in one sense fares the worst in my hypothetical scenario. Because it deliberately divorces itself from the contexts of speech acts and derives meaning only from within the language, the competence theory will interpret sentence (8) as nothing more than a question addressed to Jeffrey, to which an appropriate response is either "yes" or "no." This is to be expected, since this is a theory of sentence meaning.

Nevertheless, what is most significant about the competence theory of speech acts is that it is part of a larger semantic theory that attempts to account for the meanings of sentences from the ground up: that is, beginning with an account of the meanings of words in the lexicon, and going on to an account of how the meanings of words can be combined to give the meanings of phrases and sentences, it sets out to account for the semantic properties and relations of sentence types. As part of a larger linguistic theory of the phonological, morphological, and syntactic aspects of language, this theory offers a foundation for an investigation into such important issues as how language is acquired and how sentences are produced and understood in real time by language users. While Searle and Vanderveken's use theory begins at the level of the meanings of the utterances of sentences and Mey's pragmatic theory goes even further to take into account the larger social context of situated speech, Katz's competence theory looks inside the meanings of words and builds its account of sentence meaning from within. Searle has argued at some length that sentences have no meaning independent of context (1978). The argument has something to do with the meaning of the sentence "The cat is on the mat" in a context in which both mat and cat are floating in outer space. Katz has responded to this attack on the notion of context-free meaning (Katz 1981). What I find more interesting, however, is that Mey takes Searle's attack on context-free meaning one step further. According to Mey (2001:220), "there are, strictly speaking, no such things as speech acts." There are, properly speaking for Mey, only pragmatic acts or practs. Perhaps there is an appropriate pragmeme that covers and explains both Searle's attack on context-free meaning and Mey's attack on speech acts. I am sure that whatever it is, this pragmeme will suggest to us that we need to look beyond such disagreements to find ways in which these differing approaches can inform and build upon each other.

There are several important differences between the theories of Katz and Vanderveken with respect to the logic of performatives, but perhaps the most significant of these is the way each of these theories deals with the closely corresponding issues of the illocutionary forces and the satisfaction conditions and values of performative sentences. First, while for Katz performative sentences have just the illocutionary force named by the performative verb used, for Vanderveken (1990:19), "performative sentences ... express ... a literal declaration by the speaker that he performs the illocutionary act named by the performative verb." So a performative sentence like "I promise to finish soon" has the "secondary illocutionary force of" a promise "by way of having the primary illocutionary force of a declaration" (Vanderveken 1990:20). This analysis would seem to entail that a sentence like "I declare this meeting adjourned" has both a primary and a secondary illocutionary force of a declaration—a sort of double declaration. This might or might not be an unfortunate consequence of this analysis. Second, both Katz and Vanderveken recognize similar satisfaction conditions for illocutionary forces. According to Vanderveken (1990:27), "a condition of satisfaction of a request is that the hearer carry out in the world of the utterance the future course of action represented by the propositional content," while for Katz the compliance condition for requests contains something like this and also the condition that there is in fact a requestee. Nevertheless, while the satisfaction conditions of illocutionary forces are similar for Katz and Vanderveken, they come to different conclusions as to what constitutes the satisfaction value of an illocutionary act. For Vanderveken, the satisfaction values of an illocutionary act are "the set U_t of truth values which are truth and falsehood" (Vanderveken 1990:42). On the other hand, for Katz (1977:229) "in requestive propositions, the counterpart of truth is obviously compliance."

He continues:

> Consider the argument from (6.59) to (6.60).
>
> (6.59) I request that you eat breakfast.
>
> (6.60) I request that you eat a meal.
>
> Here validity has to be understood as preservation of compliance.

So what is inherited in going from the premise in (6.59) to the conclusion in (6.60) is compliance, not truth. Similarly, for arguments that involve advisives, what is inherited is heeding, and for arguments that involve promises, what is inherited is fulfillment.

What we are left with, then, are two kinds of logical systems: the first admitting only truth, the second allowing also for satisfaction values like compliance, heeding and fulfillment. Since the satisfaction values of the second system seem to imply a social dimension, my conclusion is that this second logical system is better prepared than the first to handle a full-fledged pragmatic theory like Mey's that hopes to take into account the larger social context.

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V

Cognitive Linguistics

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TACTIC PATTERN ERRORS AND THE ARCHITECTURE OF STRATIFICATIONAL THEORY

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Abstract. Speech errors constitute a substantial but generally neglected source of information about communication, especially concerning the architecture of the linguistic system and the way it is processed while messages are encoded into sound and while they are decoded from sound. Timing errors (anticipation, perseveration, and spoonerisms) at each interstratal level provide evidence for a linguistic system like that in Figure 1 (following page). Figure 1 also suggests the possibility of grammatical or tactic pattern errors at each stratum. Errors collected in Poland and the United States include examples of all of these types, thus providing further evidence for the architecture found useful in neurocognitive-stratificational descriptions of Polish and English.

Keywords: Speech Errors, Linguistic System, Processing, Decoding, Encoding, Stratificational Theory

Languages: English, Polish

The study of speech errors is a fascinating undertaking, because errors are evidence of how an individual's linguistic system is actually used and, inferentially, because they provide indications of its architecture. The present study is based on the assumption that the human linguistic system consists of a network of relations. Work in neurocognitive-stratificational theory since Lamb (1966) has shown the utility of a system like the one in Figure 1, stretching between the general cognitive store, shown as extending on all sides of the linguistic system within the dotted boundary, and the organ systems for the production and perception of speech. The linguistic system indicated has five strata, each centered on a tactic pattern (TP) that incorporates structural relations between elements (emes) on that stratum and having realizational (i.e., form ↔ function) relations to each adjacent stratum. The system has major input-output (I/O) relations at the top and the bottom, but there may be I/O relations between the cognitive store and each TP.

However, the utility of a conceptualization like that of Figure 1 does not constitute proof of its existence, let alone proof of the details concerning its architecture: Chomsky's NP-trace is a prime example of this principle.[1] The present study is one in a series of studies that focus on speech errors and what they tell us about the architecture and operation of the human linguistic system in Polish and English. We begin with a bit of history on related research, define errors and types of errors, and proceed to the analysis of TP errors, which are the focus of this study. We conclude with a summary of findings to date and the directions continuing research is taking.

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[1] We are indebted to Henryk Kardela of UMCS for this observation.

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1. Speech errors and the operation of the linguistic system. A realistic account of human linguistic communication faces two major obstacles. First is the rate at which we speak. Second is the juxtaposition of a non-linear cognitive store with linear linguistic output/input. The relational network in Figure 1 produces linear output by providing the relevant (partial) linearization at each stratum (cf. Sullivan 2000). So the simultaneous semantic input to the semology is related to individual sememes.[2] The sememes are grouped into predications, and these groupings are linearized. The sememes of each predication are related to lexemes in the syntax, and the lexemes are linearized across clauses. Clauses already have their linear order from the linearized order of predications in the semotactics. An analogous process of operation can be cited at each stratum.

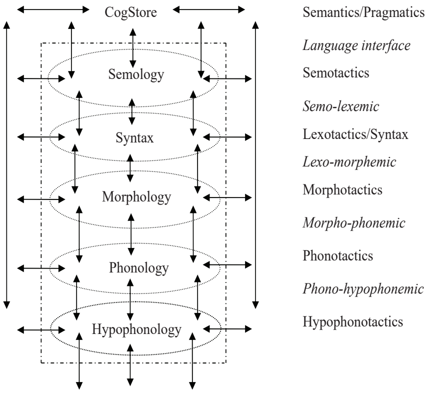

Figure 1. Outline diagram of the linguistic system, relative to the cognitive store

Given such a scenario, it is easy to account for the rate at which we speak by positing staggered processing in parallel.[3] That is, soon after semotactic processing begins, the signals start passing through the semo-lexemic realizational patterns to the syntax and syntactic processing begins. Soon after that, morphotactic processing begins. And so on through the system until the output from the motor cortex begins activating the organs of speech production.

Now this is a fairly realistic picture of error-free speech production. Peter Reich has also suggested that there is no reason to assume that processing at each stratum continues uninterrupted from start to finish. So at any given moment a particular stratum may be taking a rest. If the adjacent stratum does not pull too far ahead or lag too far behind in processing, there is no problem. But if the two strata get too far out of sync, a speech error results.[4]

---

[2] Temporal sequencing from real-world events may be provided, as in *veni, vidi, vici*, but cf. the discussion on cognitive-sememic spoonerisms below.

[3] Peter Reich, originally a personal communication in 1973; cf. also the publications by Dell and Reich.

[4] That is, a performance error occurring during oral communication. Written communication

The most widely-researched type of speech error is usually called a slip of the tongue, though Dell (1978) rightly calls it a slip of the mind. There are three types: anticipation, perseveration, and spoonerisms, which show what seems to be both anticipation and perseveration. Dell & Reich (1977) show that these slips appear between the phonology and the hypophonology (phono-hypophonemic). Dell (1986) expanded this to include morpho-phonemic, lexo-morphemic, and semo-lexemic slips. Sullivan (2011) offered additional examples of all these in Polish as well as English and provided further examples to include slips at the cognitive-sememic level. In all cases, the errors involve emes that are unordered on the upper stratum but linearized on the lower stratum. In a morpho-phonemic spoonerism like *to our* ***qu****eer old* ***D****ean*, we see two onsets appearing in onset position of stressed syllables, just not the correct or intended stressed syllable. In a lexo-morphemic spoonerism like *you'll need the* ***com****mission of the* ***per****mittee*, we see two prefixes that appear in prefix position of two adjacent morphemic words, just not the right ones. In a semo-lexemic spoonerism like *palenie raka powoduje tytoń* 'smoking a crab/cancer leads to tobacco', we see the Patients of two acts, one nominal and one verbal, appearing in each other's places. Finally, in a cogno-sememic spoonerism like *wystaw język i otwórz buzię* 'stick out your tongue and open your mouth', we see two predications conjoined by *i* 'and' but appearing in inverse order, defying the temporal sequence intended.

We call spoonerisms timing errors because they are errors in synchronicity. If we consider linear order a function of time,[5] then we can see that everything appears in an appropriate position, but at the wrong time. Anticipation and perseveration errors also involve timing. An eme appears in its correct linear order, but it also appears before or after its appropriate time, supplanting a corresponding eme.

In spite of the attention given to timing errors, they constitute somewhat less than half of the corpus of errors gathered to date. Sullivan (2011) notes that the relational network (RN) model of a linguistic system in Figure 1 predicts the appearance of such errors on the assumption that the tactic patterns are fairly well generalized.[6] A generalized tactic pattern can also give rise to the type of error that we call tactic pattern (TP) or organizational error—a structural error, if structural is understood in a general sense. The remainder of the present study concentrates on TP errors.

2. Tactic pattern errors. Tactic patterns on different strata have different combinatory missions. Hence, we predict different details regarding errors, depending on the stratum. We take the tactic patterns in order, beginning from the bottom.

2.1. Hypophonotactic errors. The hypophonotactics (HPT) adds determined (phonetic) features to combinations of phonemic features, e.g., in assimilation (cf. Sullivan 2002). It might also add, omit, or otherwise jumble the relations between hypophonemes. Examples of HPT errors are given in Table 2.

---

has its own set.

[5] RATE x TIME = DISTANCE, at least since Newton.

[6] Note: fairly well generalized, not necessarily optimized.

	observed	intended	gloss
2a	*letny*	*letni*	summer (adj)
2b	*dzękuję*	*dziękuję*	I thank (you)
2c	*cipsy*	*czypsy*	(potato) chips
2d	*łuzek*	*łusek*	hull (g. pl)
2e	[welti]	[welθi]	wealthy

Table 2. Hypophonotactic errors

As it happens, very few HPT errors showed up in the examples collected in Poland, and only a single English example 2e was observed by ST. The first four in Table 2 are the only ones found in the student submissions.[7] Yet they show the range of HPT errors very nicely.

In *letny* (2a), the *n* is realized as Apical and Nasal, without the palatalization needed for *ń*. One feature is missing. In 2b, *dzękuję*, we have a similar situation. The *dz* is realized by Apical, Groove Release, and Voice. The palatodomal place of articulation needed for *dź* is missing. The opposite happens in *cipsy* (2c). The *cz* should be realized as Frontal and Groove Release, but palatodomal articulation is added erroneously to produce *ć*.

The error in 2d is an example of what might be called erroneous assimilation. The normal state of articulation in Polish includes voicing, supplied hierarchically in the HPT (cf. Sullivan 2002). It is an articulatory prosody (sometimes called a long feature) in the HPT. With voiced obstruents the voice is simply kept on. But with unvoiced obstruents, it must be turned off, making unvoiced obstruents hypophonotactically marked.[8] The speaker of *łuzek* simply failed to turn off voice between the *u* and the *e*.

In 2e, we see Closure instead of Spirant friction combined with Apical. This looks like a combination of omission with addition. But a closer look at the mechanics of articulation here provides a clearer picture of the HPT error. The [l] is articulated with the apex of the tongue touching the alveolar ridge, blocking the air flow along the central line and letting it escape laterally, around the sides. To make a [θ] we need a slit at the apicoalveolar position with the sides of the tongue in light contact with the roof of the mouth. The transition of [l] to [θ] requires making closure at the sides of the tongue while simultaneously opening an apicoalveolar slit. If the tongue is released for the [i] before the slit is formed, what is produced is a [t]. In fact, expanding on this would also explain the pronunciation [welt$^{\theta}$i].

This gives us the three categories of errors predicted: omitting a feature, adding a feature, and failing to switch off a feature temporarily. Since the HPT is tasked with providing determined features, adding or omitting a secondary phonemic feature, especially a dependent feature like palatalization, is simply a failure of this main task. Articulatory prosodies are in fact the actual way assimilation is encoded in a relational network. Assimilation of phonemic voice merges with the non-phonemic voicing of sonorants and vowels in the HPT.

---

[7] The bulk of errors in Polish and other languages the students knew were submitted as assignments in classes in real language processing and relational network linguistics at UMCS and UWrocławski. WJS and ST both submitted additional error samples; ST provided the majority of examples in English.

[8] Whereas voiced Polish obstruents are phonotactically marked (cf. Sullivan 2002).

We now turn to phonotactics.

2.2. PHONOTACTIC ERRORS. The phonotactics (PT) is mainly concerned with syllabifying the morpheme chain input from the morphotactics (MT) during encoding. English has a fairly complex syllable structure. The syllable structure of Polish is even more complex. Essentially, the morpho-phonemic relations connect each morpheme to the appropriate set of phonemes. The morphemes are already linearized. In general, the phonemes to which they are related are not. Only the morpheme-initial phoneme is specified.[9] Now with complex syllable structure, a particular (consonantal) phoneme may potentially be realized in one of several syllable positions. Examples of PT errors are given in Table 3. We take them in order.

	observed	**intended**	**gloss**
3a	*druszlak*	*durszlak*	colander
3b	*starta*	*strata*	loss
3c	*móldmy się*	*módlmy się*	let us pray
3d	*kordła*	*kołdra*	quilt
3e	[erłeka]	[ełreka]	Eureka!
3f	*w Wrocławiu*	*we Wrocławiu*	in Wroclaw
3g	*rózumiem*	*rozúmiem*	I understand
3h	*gramatýka*	*gramátyka*	grammar
3i	[skæt]	[stæk]	stack

Table 3. PT errors[10]

In examples 3a and 3b, we see problems with placing *r*. In the PT of the Polish syllable, *r* can appear as an onset, as a part of an onset cluster, or as a syllable coda. In 3a, the *r* was supposed to be in coda position, with the sonant slot in the onset cluster left empty.[11] Instead, the *r* appears in the onset cluster and coda position is empty. In 3b, we see the exact opposite.

In example 3c, the intended phonological word should have been syllabified *módl my się*, with the so-called trapped *l* as part of a complex coda cluster. What came out placed the *l* alone in coda position with the *d* in an onset cluster of the second syllable with *m*: *mól dmy się*. This is a completely different syllabification as well as a difference in ordering, but it is unremarkable. In fact, it has no trapped sonants and can even be said to be a relatively unmarked syllabification.

---

[9] Originally suggested to WJS by M. A. K. Halliday, it worked very nicely for Russian phonology.

[10] For 3e, Polish spelling has Eureka. We provide the phonetic transcription to show it is consonants mis-ordered.

[11] We are indebted to Jacek Bacz for correcting a mistake in the way WJS read the student submission. He also pointed out that the observed form is regular in some regions, e.g., Kraków and the Kresy. The form was gathered in Lublin, however, where it is an error or at least not usual.

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Example 3d is a bit more complex. It could be called a morpho-phonemic spoonerism, because the *ł* and *r* appear in each other's position. Yet this would be a spoonerism between a coda position and part of an onset cluster. Not only are the tactic positions different, but the entire onset (*dr*) is not involved. Currently we have no other examples of morpho-phonemic spoonerisms that can be shown to involve less than a complete, corresponding PT constituent.

Instead, we consider this a PT encoding error. Assume that the MT supplies the order between the two morphemes: *kołdr a*. Assume also (per Halliday) that the initial phoneme of the stem morpheme is specified and the rest are left to be ordered by the PT. Then what is supplied to the PT can be seen in Figure 4, with *k* coming first, *a* last, and everything else unordered in between.

k	*o* *ł* *d* *r*	*a*

Figure 4. Material supplied to the phonotactics in example 3d

Now we conceive of the syllabification as follows. There are two vowels, implying two syllables in Polish. The first syllable gets *o* as its vowel, the second syllable gets *a*, a consequence of morpheme ordering. The *k* must belong to onset position of the first syllable, leaving *ł*, *d*, and *r* to be accommodated. The *d* can only go into onset position of the second syllable, leaving *ł* and *r*. Each can go into coda position of the first syllable or into sonorant position of the onset of the second syllable. The speaker put the *r* into the first syllable, leaving the *ł* as part of the *dł* onset to the second syllable, producing *kordła*. This is a perfectly good phonological word in Polish, it's just not a Polish lexeme. The lexeme requires the opposite choices for the *r* and *ł*. In 3i, we have a parallel example involving *k* and *t* in the same syllable.

Example 3e is similar, except that there are no onset clusters and in fact no word-initial onset at all. Spelled *eureka,* this could be a tetrasyllabic word in Polish. But in normal speech, the pronunciation is essentially [ełreka], where *ł* is pronounced [w].

Example 3f is a violation of a standard Polish grammar rule. The rule is that *w* 'in' is realized as *we* before a word beginning with a *w*-cluster like *Wrocław*. But a *wwr* onset has a lengthened consonant that would be not be phonotactically permissible in Polish, and one *w* would be omitted. That's what we posit here. The grammar rule is ignored in favor of a straight PT encoding, which is then cleaned up by the HPT.

In Example 3g, we have a word incorrectly accented on the antepenultimate syllable. This position of accent is possible under two circumstances. First, if the word is from Latin or Greek, e.g., *polítyka*, the antepenult accent is realized. Second, if we have a word ending with an enclitic (cf. 3c), the normal penultimate accent of the pre-enclitic portion is retained. Neither condition holds here, yet the word got an antepenultimate accent, a purely PT error. In 3h, *gramatýka* reverses the situation and ignores the learned exception.

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This completes the set of typical PT errors. We turn now to the morphotactics.

2.3. Morphotactic errors. Polish has an extremely complex morphotactics (MT). English has a highly impoverished inflectional morphology and possibly, depending on the individual, a complex of relations that includes bits and pieces of the derivational morphology of the donor languages to its lexicon. We may predict certain kinds of MT errors: errors in inflectional class, substitution of unmarked endings where marked endings occur or the reverse, errors in stem class or gender assignment, erroneous derivational suffixes, or even combinations of these errors.

The complexity of Polish MT relations has the potential to provide more chances for error than any other stratum, though we have no statistically satisfactory counts for comparison. Typical examples of MT errors are given in Table 5.

	observed	**intended**	**gloss**
5a	*ze śmiećmi*	*ze śmieciami*	with rubbish
5b	*rozumisz*	*rozumiesz*	you understand
5c	*lubiałam*	*lubiłam*	I (f) loved
5d	*z przyjacielami*	*z przyjaciółmi*	with friends
5e	*spam*	*śpię*	I sleep
5f	*parę odcinki*	*parę odcinków*	a couple of excerpts
5g	had went	had gone	had gone
5h	derivating	deriving	deriving
5i	*częściejsze*	*najczęstsze*	most often

Table 5. MT errors

Example 5a has a marked form of the instrumental plural ending, whereas *śmieć* takes the unmarked form. Example 5b has *rozumieć* assigned to the *-i-* conjugation, in parallel to *widzieć* ‘see’. This error is compatible with Jakobson’s observation that an unmarked form generally (but not always, cf. 5a) replaces a marked one. Example 5c is parallel to 5b, but it involves the assignment of the verb past tense to the wrong infinitive stem.

Example 5d has a double error. One error involves the instrumental plural ending, which should be marked *mi* instead of unmarked *ami*. This is the opposite of the error in 5a. The other error involves the stem. Most nouns have either hard or soft stem-final consonants throughout, excepting only cases of archiphonemic neutralization. But *przyjaciel* has a soft stem in the singular and a hard stem (*przyjaciół*) in the plural oblique cases.[12]

Example 5e has an error in which the present tense form expected from the infinitive appears instead of the soft stem that exceptionally takes the *-i-* conjugation.

Example 5f is a complete mystery. *Odcinek* is a masculine noun. The student who submitted this error suggested that *odcinki* was genitive singular for a feminine noun. The MT error here is in assigning *odcinek* to the wrong declension. But there is also a number error here, as *parę* ‘a few’ requires genitive plural. Barbara Bacz of Université Laval (p.c.) suggests a non-native Polish speaker, in spite of the fact that

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[12] The shift of historically hard *l* to [w] and the *e* → *o* → *ó* shifts are historically regular.

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the students were instructed not to submit errors from non-natives. In any case, if the student was accurate, this is a double MT error.

In 5g, we see an incorrect form of the perfect participle of *go*.[13] Errors 5h and 5i involve possible but incorrect derivations, 5h incorrectly back-forming the verb from the noun and 5i incorrectly deriving a superlative from the adjectival base *częst* ‘often’.

Table 5 provides a good cross-section of MT errors in our database, even if it cannot give a clear picture of their number, a question to which we return in Section 4. Instead we turn now to the syntax.

2.4. Lexotactic errors. The syntax or lexotactics (LT) provides a number of different opportunities for TP errors. In general, case assignment and agreement are LT errors. That is, a particular construction requires a certain case, e.g., genitive. All the LT must do is send a signal to the MT (or get a signal from the MT during decoding) that the noun (phrase) is in the genitive case. There are many forms that a Polish genitive ending may have, depending on whether the lexeme is a noun, a pronoun, a numeral, or an adjective and whether it is singular or plural. But the LT needs to know none of this. Its only interest is in the case. Let the MT take care of the form of the ending. The same division of labor is true of agreement. There are also potential word order problems, where all the lexemes appear in a clause, with one in a possible but incorrect slot. Examples of LT errors are given in Table 6.

	observed	**intended**	**gloss**
6a	*matkę głowa już nie boli*	*matki ...*	mother no longer has a headache
6b	*zainteresować go tematu*	*... tematem*	interest him in the topic
6c	... with Carol and I	... me	
6d	... easier for we gaijin	... us gaijin	... easier for us ‘foreigners’
6e	*ważniejszy jest grupa*	*ważniejsza*	more important is the group
6f	the organization of the texts show	... shows	
6g	*będzie nie zwracał ...*	*nie będzie ...*	he won’t be returning (sth.)
6h	*nie ma (mm) czego się bać*	*nie ma się ...*	there’s (um) nothing to fear
6i	*lubi inne ludzi*	*innych ludzi / inne rzeczy*	other people / other things
6j	there’ll be you	→	There You’ll Be (song title)

Table 6. LT errors

The errors in 6a-6d involve case assignment. *Matkę* in 6a is the direct object of *boli*. Since *boli* is negated, the object should be in genitive instead of the accusative that the object of a non-negated verb gets. *Zainteresować* in 6b takes two objects, a Patient in the accusative and a Range in the instrumental. The speaker produced the second object in the genitive case. The error in 6a is relatively common, but the appearance of genitive in 6b may be random or it may derive from an unintended blend with *zachęcić kogoś do tematu* ‘urge someone to [take up] the topic’.[14] Either way, it is a LT error.

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[13] A common dialectal form, this example was collected from a speaker of Standard English.

[14] We are indebted to Barbara Bacz of Université Laval for this insight.

Examples 6c and 6d show pronouns in object position of prepositional phrases appearing in the nominative case. With 6c it could be claimed that the lack of case on *Carol* perseverated on *I*, but that claim does not apply to 6d. Explanations here are speculative, but two interesting TP possibilities can be suggested. First, it is possible that pronominal case loss is progressing in contemporary English. Second, it is possible that constructions with pronouns and nouns are not specified for case, as nouns in English have none. If no case is specified syntactically, the MT simply supplies the unmarked nominative case. There is also the less interesting speculation that these are fairly common hypercorrect productions. Still, all are LT errors and we speculate no further.

Examples 6e and 6f have errors in agreement. In 6e, we have a masculine adjective failing to agree with a feminine noun. The fact that the adjective is prior to and separated from the noun by the verb may have played a role here. We are just not in a position to provide statistical verification. Sequencing does not explain all the Polish examples we have.[15] In 6f, the situation is subject-verb agreement. The verb agrees with the nearest noun *texts* instead of with the more distant subject noun *organization*.

In 6g and 6h, we have word order errors. The Polish negative particle *nie* is proclitic to the verb. In 6g, it is proclitic to *zwracał* ‘he returned (something)’. But the full verb in this case is *będzie zwracał* ‘he will be returning’ so the *nie* should precede *będzie*. In 6h, the *się* should come after the first constituent (*nie ma*) in colloquial Polish or after the verb *bać* in a more literary variant. Responses to an informal survey weighed heavily against putting it after *czego*. As the *mm* ‘um’ indicates, however, the speaker hesitated after *nie ma*.[16] Possibly he hadn’t yet decided what he wanted to say. He could have started out to say *nie ma nic strasznego* ‘there’s nothing frightening’ and decided to soften it. Then the *się* came after the first word of the resumed utterance. Speculation again.

Example 6i is a true problem. There are many possible classifications of its error. In the **intended** column, we present two possibilities. Depending on which of those was intended, we have an error in agreement or in case. *Ludzie* has a genitive-accusative and *rzeczy* has a nominative-accusative. However, *inne* is the wrong gender and case to agree with *ludzi* but agrees correctly with *rzeczy*. Another possibility is that this is a type of error we have not yet taken up, a blending error of the two objects suggested. In any of these cases, though, it is a LT error. Barbara Bacz (p.c.) suggests another possibility, that *ludzie* was treated as a collective, instead of a masculine personal noun. Then the agreement makes sense syntactically. But there is certainly a semotactic (ST) modification—perhaps error—involved. Again, interesting but speculative.

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[15] It is the impression of WJS that sequencing is relevant to the majority of such agreement errors (cf. also 6a).

[16] WJS gathered this example.

Finally, 6j involves two completely different sentence structures. In *there'll be you,* we have existential *there* as the topic, usurping subject position, followed by VS. *There You'll Be*, a song title, has locative *there* in the position of a sentence adverb followed by a clause in unmarked SV order. This might be a semotactic error (wrong lexeme), but it is still a TP error.

LT errors of the sorts found in Table 6 are common in the examples gathered, if not as frequent as MT errors. Yet the patterns are clear and correspond to the possibilities that the stratificational model predicts.

A longer example of the kind of LT error with all constituents realized in appropriate positions but not where they should be realized is given in 7.[17]

(7) Attorneys for Lohan and ***four people*** suing her agreed Wednesday to reschedule a trial set for later this month. [...] Lohan is being sued by a woman who was in a vehicle chased by ***Lohan and three men***.

If the first sentence is correct about four people suing Lohan, the *three men* in the second sentence should be conjoined with *a woman* and not with *Lohan*. Otherwise, the second sentence is completely unremarkable.

We turn now to semotactic (ST) errors.

2.5. SEMOTACTIC ERRORS. The semotactics is where sememes are related to each other in patterns appropriate to a particular language. Typically, a grouping of sememes is related semantically to a chunk of information the speaker wishes to encode and formally to a clause. Also typically, languages have many fixed collocations that can be triggered at this stratum. These include cultural idioms and phatic communion but also collocations that are frequently used by the speaker and have thus gained the status of a fixed sememic predication, even though they may be semantically transparent and morphologically and syntactically complex. But just because a fixed sememic predication can be triggered in communication, whether encoding or decoding, does not mean that it is triggered every time the need arises. Sometimes a more or less awkward ST alternative is encoded.[18] Examples of these kinds of ST errors are given in Table 8.

Most of the examples in the **observed** column of Table 8 are ST constructions that are very close in meaning to the fixed expressions in the **intended** column. In some cases, they could almost be called paraphrases. However, for some reason the input to the ST did not activate the fixed expression in its appropriate place. Instead, a ST construction was provided to the LT and the rest of the encoding process ran according to plan. In 8a, all the lexemes are present, but the wrong noun is modified. In 8b, the wrong kind of oil is 'added to' instead of 'poured on' the fire. In 8c and 8d, clumsy paraphrases are supplied in place of the shorter, more usual expressions.

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[17] Gainesville SUN, 8 July 2010, page 2a.

[18] An example of the regular use of a fixed expression can be seen in police reports: "We then proceeded to walk around the house and check all the doors and windows" instead of more direct "we then walked".

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In 8e, the speaker had a choice of two fixed lexemic idioms in Polish that parallel the English one, but she produced a novel expression that is inferentially equivalent in meaning. That is, crocodiles have no tears; their eyes are lubricated by nictitating membranes. Thus to *cry crocodile tears* is not to cry at all, because crocodiles cannot cry. Which makes *cry(ing) like a crocodile* not crying. Applying a little knowledge about crocodiles lets us conclude that all these expressions communicate the same scene.

Example 8f was produced in the context of a discussion about monuments to famous people. However, *za* 'behind, beyond' is not generally used with accusative in Polish temporal expressions. *Po* + locative is used, which requires a reference point like *smierć* '(the point of) death'. Yet *śmierć* and *umarły* 'dead' are etymological relatives and semantically close. *Umarłość* is or should be the state noun derived from *umarły* 'dead'. In short, a lot of tactic creativity went into the observed expression.

	observed	**intended**
8a	*po najmniejszej linii oporu* 'along the smallest line of resistance'	*po linii najmnejszego oporu* 'along the line of least resistance'
8b	*dodać oleju do ognia* 'add (lubricating) oil to the fire'	*dolać oliwy do ognia* 'pour olive oil on the fire'
8c	*być na leczeniu* 'be on treatment'	*leczyć się* 'be treated'
8d	*nikt nie miał opozycji* 'nobody had opposition'	*nikt nie oponował* 'nobody opposed'
8e	*płakać jak krokodył* 'cry like a crocodile'	*płakać krokodylimi łzami /* *ronić krokodyle łzy* 'cry crocodile tears'
8f	*za umarłość* 'beyond the dead state'	*po śmierci* 'after death'
8g	*przerwa kawowa* 'coffee break'	*przerwa na kawę* 'a break for coffee'
8h	*czytając książkę, zgasła jej lampa* 'reading a book, the lamp went out (on her)'	*kiedy czytała książkę, zgasła jej lampa* 'while she was reading a book, her lamp went out'
8i	Victoria Secret's ad	Victoria's Secret ad
8j	My Mom is Hotter than Me	I'm Hotter than my Daughter

Table 8. ST errors

Przerwa kawowa in 8g violates a productive LT pattern. You can interrupt any ongoing activity to take time for something completely unrelated. The expression involved is *przerwa na* + a noun in the accusative, as would be expected. The submitting student suggested that the speaker had just returned from an extended stay in the US.

In 8h, there is a dangling participle in both Polish and English. The only difference is that the explicit Maleficiary *jej* 'on her' is more common in Polish than in English expressions of this sort, which generally identify the owner of the lamp.

In 8i, the fixed expression 'Victoria's Secret' was not activated and a TP encoding was implemented. In the process, the possessive was attached to the wrong element. The same situation is described in 8j, but the observed utterance takes the point of view of the daughter, while the intended utterance, referring to a TV show, takes the point of view of the mother.

All these errors involve ST encoding in place of fixed expressions. Other kinds of ST errors can be cited, if we take greater discourse blocks into consideration. For example, a complete logical argument could be presented with a number of clauses. The linear order of clauses is determined by the ST linearization of predications. If the linearization is partly or wholly jumbled in the ST, the logical argument will still be complete, but it may also be incoherent.[19] In general, cohesion, in Halliday's sense, is a product of ST well-formedness. Lack of cohesion is a ST error. Errors in pronoun-antecedent identification and in tense or tense-aspect choice (cf. Bogdan & Sullivan 2009) are part of this, but the size of texts necessary to demonstrate such errors precludes their inclusion here.

We turn now to a summary of the work in progress, beginning with a review of underlying assumptions and relevant previous findings.

3. SUMMARY. The assumptions underlying our and other stratificational studies on speech errors are given in 9. Findings from previous studies are given in 10. Findings from the present study are presented in 11.

(9) a. The human linguistic system is a network of relations.
  b. It is represented in the brain ultimately by a neurological network, probably via systems of cortical columns (cf. Lamb 2005).
  c. The system functions by the spread of activation across the network.
  d. The input to the system from the cognitive store is simultaneous, not linear (but see footnote 2).
  e. Incremental linearization is provided on a succession of strata.
  f. The strata are processed in loose parallel.
  g. Each stratum takes random, uncoordinated rest periods.

(10) a. Too great a lack of coordination in the random rest periods results in timing errors.
  b. Timing errors include anticipation, perseveration, and spoonerisms.
  c. Timing errors can appear between any two strata in Figure 1, including cogno-sememic, semo-lexemic, lexo-morphemic, morpho-phonemic, and phono-hypophonemic errors.
  d. The level of an error is seen in the size (= combination of relationships) of the eme(s) out of place and the tactic positions involved.
  e. The general outline of the system in Figure 1 is confirmed for Polish and English by timing errors.
  f. The strata are interconnected, not modular.
  g. Each stratum shows evidence of TP generalization.

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[19] In fact, ST made just such an editorial correction, noting that WJS had inserted a paragraph of one section after the summary to that section, instead of just before it.

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(11) a. Some speech errors seem to arise within a single TP.
  b. Though not modular (cf. point 10f), TPs have some leeway regarding independent operation.
  c. The leeway in operation depends on the degree of generalization in a TP.
  d. The degree and details of generalization depend on the individual language user.
  e. The number and distribution of TPs matches the distribution of TP errors.
  f. All findings are compatible with the assumptions and the findings of previous work on errors in neurocognitive-stratificational theory.

4. CONCLUDING REMARKS. Both previous work and the present study not only confirm the hypotheses, but they suggest a number of inferences about human communicative processes. First, if part of the encoding process is the linearization of the message and if decoding is an analogous but reverse process, it seems likely that decoding involves delinearization. If so, this suggests why timing errors are so rarely noticed by hearers (cf. Sullivan 2011). TP errors seem to be noticed but ignored, assuming they do not interfere with understanding.

The statistical distribution of errors also needs study, though it probably requires some sort of controlled experiment. Exactly what sort of experiment would produce satisfactory results, i.e., a design that does not bias the results, is not clear at present. Claims have been made about the numerically dominant relative frequency of morpho-phonemic timing errors, but Sullivan (2011) was unable to confirm these claims. More work on this needs to be done.

A third type of error still needs to be scrutinized, what we call blending errors (*conferences* observed when *constant references* was intended). There is also a body of yet unclassified errors. In addition, our studies may shed light on the unintended puns of Reich 1984 and other things, like redundancies, which are only errors stylistically.

5. AFTERWORD. Mel’čuk insists that our utterances are constructed from cobbling together pre-fabricated or memorized chunks like idioms or other fixed collocations (cf. Mel’čuk & Zholkovsky 1984), and no doubt this is true at least some of the time for at least some people. Chomsky has insisted from the beginning that each sentence is unique and individually generated. TP errors show that even though there are plenty of fixed collocations that appear in utterances, they may be overridden by TP creativity. But this creativity is not mechanical or automatic, as in Chomskyan theory, rather it is a consequence of the way cognitive/semantic input is encoded via activation spreading through a relational network. Research to date has shown some likely characteristics of this network. Further work will show more details of the architecture that must underlie the linguistic systems each of us constructs.

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VI

Diglossia & Second Language Acquisition

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REPETITION IN LANGUAGE LEARNING: AVOIDING COLLATERAL DAMAGE

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Abstract. Repetition is widely accepted as essential to developing a skill; however, repetition in language learning was devalued, starting in the 1960s. This paper claims that the de-emphasis of repetition was collateral damage when the audiolingual method in language teaching was rejected. It notes that repetition has remained in exile for over forty years and suggests that this is at least in part due to an acceptance of Chomsky's views on the language faculty. The paper ends with a recommendation that it is time for meaningful repetition, in both production and reception of language, to re-appear as an important aspect of language acquisition and language pedagogy. Suggestions for incorporating repetition in language learning activities are described.

Keywords: Repetition, Frequency, Behaviorism, Language Faculty, Language Learning

Languages: (none)

> "As a single footstep will not make a path on the earth, so a single thought will not make a pathway in the mind. To make a deep physical path, we walk again and again. To make a deep mental path, we must think over and over the kind of thoughts we wish to dominate our lives." (Thoreau 2006:27)

The value of repetition in learning activities, from serving a tennis ball to singing a folksong, has always been assumed. Nevertheless, an aberration has occurred in language learning theory and practice. The perceived value of repetition diminished in the 1960s and has yet to be sufficiently revived. With consideration for audiences who are interested in the intersection of linguistics, language acquisition, and language pedagogy, the aims of this paper are (1) to explain how that aberration came about, (2) to justify a renewed acceptance of repetition, and (3) to describe some appropriate repetition activities in language learning.

To explain how repetition became devalued, we will first review some well-known history. By the 1950s, behaviorism was closely associated with linguistic theory, language learning, and psychology. The impact on these three areas was significant when Chomsky's review (1959) of Skinner's *Verbal Behavior* dethroned behaviorism. Our focus in this paper is on what happened in the second area, language learning.

To consider this subject, one might use the metaphor of dirty bathwater being dumped out and replaced with fresh water. The audiolingual method was the 1950s bathwater (i.e., the mainstream paradigm) in language learning. The audiolingual method was thrown out because of its association with behaviorism, and we note that it was dirty because it neglected the importance of meaningful learning. Un-

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fortunately, there was a baby in the bathwater: repetition! Repetition was discarded not because it is inherently bad; rather, it was collateral damage from the attack on behaviorism. The baby we want to save needs fresh bathwater in which meaning (i.e., understanding by language learners) is valued.

The 1950s bathwater in linguistics (American Structuralism) was shoved aside by Chomsky's Generative Grammar, which soon claimed that the mind includes a genetically-based faculty akin to an organ that is specialized for language. Chomsky's theories have also had an enormous impact in psychology, given that his critique was at the forefront of a waterfall of criticism towards Skinner, contributing to the shift from the 1950s bathwater of behaviorism to a more cognitively centered paradigm. What is less well known, for some, is that Chomsky has also heavily influenced the mainstream language learning theory, often associated with Stephen Krashen, a prominent theorist in second language acquisition. Indeed, Krashen's theories were a major force in the displacement of audiolingualism (ALM) and have helped prolong the exile of repetition.

We will describe here the influence that Chomsky had on Krashen, as illustrated by comments Krashen made during a visit to the Department of Foreign Language at the US Air Force Academy (USAFA) in January 1989. After a demonstration of the Academy's video software that was enhanced with interactive capabilities, which included repetition, Krashen commented that the team should not go to the trouble to provide added functionality, including learner-controlled repetition and access to word meanings using an online glossary. To paraphrase his reaction, "Don't worry about all that! Use your resources to simply provide more video." We will then make a case for the re-introduction of repetition in language learning.

The type of repetition encouraged by this paper is not repeating the same string of words, over and over again without understanding them. Indeed, some research (Gatbonton & Segalowitz 2005) suggests that repetition is meaningful when it is embodied in activities that involve multiple instances of a lexical item or a grammatical construction in various contexts, all of which include tools to help the learner comprehend the new language they encounter. Although frequency and repetition are sometimes used interchangeably, we will use frequency here to refer to the number of times an item occurs in authentic situations, such as a corpus of texts or transcription of spoken language. We will use repetition to refer to learning activities that present a lexical unit multiple times in various meaningful contexts, either authentic or contrived, in activities that call for production or recognition. Frequency occurs incidentally; repetition occurs by design. Thus, repetition in learning activities does not entirely depend on naturally occurring frequency. Furthermore, we are using the same term, repetition, for both production and reception of language, and we make no claims here as to the relative and comparative value of each.

The paper ends with specific suggestions for types of language learning activities involving repetition. Linguistics, language learning, and psychology need to come together again, this time with meaningful repetition that occurs in engaging activities.

1. HOW REPETITION CAME TO BE DEVALUED. American psychology in the first half of the 20th century was heavily influenced by behaviorism, with an early view provided by John Watson's paper "Psychology as the Behaviorist Views It" (1913). Given that the study of language is tightly bound to theories of the mind, theories of learning, and theories of behavior, behavioristic tenets soon came to influence and shape linguistic thought.

Regarding linguistic thought, American Structuralism along with European Structuralism marked the transition from studying language diachronically (using the historical-comparative method) to studying it synchronically. Leonard Bloomfield, a leader in this movement, promoted what would now be called a corpus-based approach to studying a language, starting with observed sounds and moving methodically up to larger elements, such as words, gradually working up to the study of syntax and semantics, without assuming that all languages would fit into a pre-determined mold. This descriptive method (Bloomfield 1933), which he had already successfully applied to the study of a number of languages, such as the Algonquin American Indian languages, can be seen as a reaction to the tendency to try to analyze all languages in terms of how they relate to Latin or French. Some misunderstood Bloomfield to have claimed that meaning is not relevant to the study of language, forgetting that field study by its very nature is highly contextualized. Illustrating this fact, Fought (1999:10), in the introduction to a massive collection of commentaries on Bloomfield, notes, "The distributionalists who followed [Bloomfield] ... converted his doctrine into a sweeping warrant for suspending the structural analysis of meaning." After his initial field work, Bloomfield embraced behaviorism in the 1930s, a move that later led to unforgivable guilt by association from Chomsky's perspective.

Unfortunately, similar guilt by association sidelined work by such people as Kenneth Pike, the founder of Tagmemics. He had been inspired by Bloomfield and Sapir as a young linguist (Pike 2001) and was extremely talented at learning elements of a language he had never before encountered, from sounds all the way to meanings of words. Pike could use meaningful elements of a previously unknown language in a very short time, by interacting with native informants, handling everyday objects, and using repetition with controlled variation. This example of non-behaviorist structuralism in action clearly demonstrates the value of intelligent repetition within meaningful contexts.

In 1942, however, World War II precipitated an urgent need for trained junior officers and soldiers with technical skills as well as expertise in languages. Rather than building on all of the positive aspects of these previous efforts, developers ignored the value of context and meaning and seized upon a readily implementable and isolated element of those efforts: a form of rote memorization through oral recitation of dialog lines and drills. The government addressed the urgent needs of that critical era with the creation of the Army Specialized Training Program (ASTP) where German, French, Italian, Chinese, Japanese, Malay as well as other languages were taught (Richards & Rogers 2001). Within one year, 53 universities were teaching languages using techniques that were significantly influenced by Bloomfield's thinking (Fought 1999), and that became known as the Army Method.

After the war, evolutionary developments, grounded in structural linguistics and the work done in the ASTP, led to what became the audiolingual method (ALM) (Richards & Rogers 2001), which was replete with rote repetition of pattern drills. The latter provided the basis for much of Robert Lado's work in the teaching of English as a Second Language (ESL) (Richards & Rodgers 2001), leading him to become an outspoken advocate of ALM (Lado 1964) and contribute to its broad impact in the teaching of English.

A misapplication of Bloomfield's strictly bottom-up field methods led to a de-emphasizing of meaning, context, and understanding in the language classroom. Teachers were told that the native language was a distraction and that seeing the written word would do a disservice to the long term success of the student. In a cheap imitation of field linguistics, students were exposed to whole phrases of so-called natural speech by rote drills, without the context of visual and social-communicative cues.

In 1957 B. F. Skinner, the prominent behavioral psychologist, published *Verbal Behavior*, which brought together psychology and linguistics, and eventually became a convenient target for a budding linguist, Noam Chomsky, who published his landmark book, *Syntactic Structures*, the same year. Although its association with behaviorism was not formally part of the initial formulation of ALM (later known as Audiolingualism), Skinner's theory of learning became inseparably associated with ALM, primarily due to the writing of Wilga Rivers (Castagnaro 2006). Indeed, in her book, *The Psychologist and the Foreign Language Teacher*, she stated, "the audiolingual methods are based on the Skinnerian theory, and it is from this basic theoretical position that their advocacy of 'mimicry-memorization' in pattern drills and dialogue learning has been derived" (Rivers 1964:29). This association (right or wrong) grew in the minds of many, until *Verbal Behavior* came to represent behaviorism, behaviorist linguistics (*à la* Bloomfield), and Audiolingualism, all together and inseparable.

Chomsky's review of *Verbal Behavior* (1959) was widely regarded outside of psychology as a successful attack on behaviorism in general and Skinner in particular, labeled many years later as a "masterly and highly influential critique" (Ellis 2002:177). Almost immediately, Audiolingualism and American Structuralism were on the defensive. And as if Chomsky's derision of Skinner and Rivers' linking of ALM to behaviorism were not enough, the results of the Pennsylvania Foreign Language Research Project (Carroll 1969) delivered the *coup de grâce* to Audiolingualism. Due to the almost absolute synonymy that had developed between Audiolingualism and behaviorism, they faded into the past for most people in the language learning field, taking with them repetition as an acceptable pedagogical technique.

In linguistics, Chomsky's approach to language has often been called a revolution. After introducing the notion of competence as a mental model of a language[1],

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[1] In psychology, Chomsky's campaign opened the door to cognitive approaches. The Stanford

Chomsky (1965) later proposed that the mind of an infant comes with a genetically determined faculty (sometimes called an organ) called a Language Acquisition Device (LAD) or the language faculty. Chomsky's view of language soon became mainstream, promoting the notion of this innate faculty of the mind, which was diametrically opposed to the blank state of behavioristic theory.

Beyond the negative impact Chomsky had on behaviorism, his claim of the existence of a language faculty or language acquisition device influenced a whole generation of post-ALM language teachers, primarily through the impact it had on Krashen's Monitor Theory (Dulay, Burt, & Krashen 1982). The various hypotheses of Krashen's model provided the major underpinnings for the Natural Approach (Terrell & Krashen 1983), but the Input Hypothesis,[2] which Krashen cast in the pseudo-mathematical form $i + 1$, is probably the most well-known aspect of his theoretical model.

It is not the Input Hypothesis itself that kept repetition in a devalued position after the rejection of Audiolingualism and its rote repetition. The main culprit in the continued exile of repetition from language learning was the acceptance of Chomsky's views on the language faculty. If a universal grammar at the heart of all languages is genetically part of the language faculty, including the concepts behind the words we use, then, it was supposed, one encounter with a sentence that illustrates how parameters are set could be sufficient. As Stephen Straight characterizes an extreme, Chomsky-based position, "One trial sets a parameter; repetition is useless" (S. Straight, personal communication, November 14, 2010).

After the rather significant impact of Krashen's model, however, the formulation he developed of the relationship between input and comprehension was judged inadequate by Gass (1988). She modified Krashen's explanation of the relationship between input and comprehension to add apperception and intake[3] as part of the process that leads to comprehension and acquisition, an addition that remains widely accepted today.

Still other scholars have asserted that Krashen's model did not adequately account for the role of interaction and negotiation in SLA. Their addition to theory plays a significant explanatory role in suggesting how the learner gains increased access to the form and meaning connection (Pica, Doughty, & Young 1986; Pica 1994).

Encyclopedia of Philosophy (Stanford 2010) lists Chomsky as one of six founders of cognitive science and suggests Boden (2006) as a source for a comprehensive history of cognitive science. In the year 2000, University of Minnesota's Center for Cognitive Sciences compiled a list of the 100 most influential works in cognitive science from the 20th century. The number one work was Chomsky's Syntactic Structures (1957). Chomsky helped replace behaviorist perspective with a cognitive perspective.

[2] Krashen's Input Hypothesis, a key element of his Monitor Model, asserts that language can only be acquired by students reading or hearing messages ("input") slightly beyond their current ability to comprehend (i + 1).

[3] Apperception and intake are steps in the process whereby comprehension of "input" is first noticed or "apperceived" and then comprehended and then becomes part of the learner's acquired cognitive structure, i.e., it becomes "intake."

So, where does this leave things? Chomsky discredited Skinner. This action was part of a larger mosaic in which mainstream psychology changed its focus from observable behavior to a psychology of mind. The result was a shift in psychology away from behaviorism and toward cognitive approaches, some of which posited genetically-based mechanisms like Chomsky's LAD. Krashen later adopted the notion of a language faculty and posited that learning cannot lead to acquisition[4], and now we see where Krashen has fallen into disfavor.

These shifts from one theoretical paradigm to the next have tended to be absolute, and this absolutism has affected linguists and language teachers alike. When one or two tenets of an old paradigm are found to be lacking, based on observations that most often reflect valid, theory-based concerns, then entire theoretical models are rejected and their proponents discredited. For example, Ellis (2002) now laments Lado's passing into obscurity, because Lado's work with frequency in language occurrence reflected findings very much akin to those in his own, more recent research. He points out that Lado embraced ALM despite the fact that it involved "pattern drills in which the role of understanding was minimized as much as possible" (Ellis 2002:177), thus dooming the bulk of Lado's thinking to 40 years of exile.

Essential to this discussion is the fact that Ellis seems to lament the impact on his own research, caused by the decades-long loss of Lado's valuable and theoretically sound ideas about frequency and repetition, which in essence constituted even more collateral damage wrought by a too uncritical acceptance of Chomsky's LAD model. Furthermore, Chomsky's venture into learning psychology can easily be viewed as a serious overreach, given that he had only a very meager knowledge of the subject he was attacking. Ironically, this corresponds with what Chomsky saw as Skinner's overreach into linguistics (MacCorquodale 1970). Thus, the learning paradigm which Chomsky so viciously attacked was only superficially understood by him (and his followers) and amounted to Chomsky annihilating nothing more than a straw man (Ausubel, Novak, & Hanesian 1978).

Commenting on these developments, Castagnaro (2006) argued that the audiolingual method's misplaced attachment to behaviorism plus a misunderstanding of fundamental aspects of behaviorist theories have caused scholars in SLA to disregard the importance of practice, such as repetition. Indeed, a quick examination of typical language textbooks in use today reveals the apparent prejudice against repetition as a valid instructional technique. Perhaps supporting the existence of this apparent prejudice, one researcher comments that despite arguments and evidence of the value of repetition "little research has examined its sociocultural, discursive, and affective roles in education, and the ways in which certain kinds of repetition can enhance or impact language, content, and communal learning" (Duff 2000:111). Thus, repetition was rejected with ALM and has not yet been revived in the post-ALM period of language teaching, and disagreements abound. For example, one particular debate addresses issues with drills, a type of practice that involves repetition, and whether they can have value (Wong & VanPatten 2003, Leaver, Rifkin, & Shekhtman 2004, Wong & VanPatten 2004). Other researchers take a more moderate view and maintain that all drills are not created equal (DeKeyser 2007) and recognize that the important question is whether activities that imply repeated performance can help establish the necessary form-meaning connection through a focus on form.

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[4] Krashen's Acquisition-Learning hypothesis is a hallmark of his theory of second language acquisition and well known to the field of second language acquisition. He maintains that learning is conscious and the product of formal instruction, where acquisition is supposedly a more natural by-product of actual communication using the language (Krashen 2010).

2. WHY REPETITION SHOULD BE RE-VALUED. The rejection of repetition as a pedagogical tool has impoverished the field of language learning and led practitioners to ignore the necessity of the type of practice that builds up a mental corpus of data. Rehabilitating repetition, however, would constitute neither an endorsement of behaviorism nor a rejection of the existence of innate cognitive processes. As Patricia Kuhl (2000:11856) states, "Infants are neither the tabula rasas that Skinner described nor the innate grammarians that Chomsky envisioned. Infants have inherent perceptual biases that segment phonetic units without providing innate descriptions of them. [...] infants detect patterns, exploit statistical properties, and are perceptually altered by that experience".

Recent work by various applied linguists supports the notion that repetition is an integral part of how the mind acquires the ability to process language (Bybee & McClelland 2005; Beckner, et al. 2009). Other researchers draw similar conclusions from their work on frequency (Abbot-Smith & Tomasello 2006). Supporting the value of repetition while also casting it in a different light from the practice in the days of audiolingual methodology, Duff (2000:110) concluded that repetition should be "relevant to the learners – a form of negotiation of messages and texts – and not merely (or entirely) a mechanical or rote parroting of structures that does not ultimately enhance students' proficiency in the target language." Elaborating on the notion of relevance, Hu, Liu, & Zhang (2010) have shown the extent to which repetition of Chinese words with positive "emotional valence" is more effective than repetition of those described as negative. Work by other researchers supports the value of repetition in "sociointeractional" settings (Piirainen–Marsh and Tainio 2009) or in "sociocultural" settings that involve collaboration (Gánem-Gutiérrez 2009). In their work on repetition by video game players who interacted during play, Piirainen–Marsh & Tainio (2009:165) concluded that by "repeating and imitating meaningful chunks of language" the players are able to adopt new words and phrases "into their own repertoire so that the patterns may become available for recycling in other contexts."

Some linguists have proposed alternatives to Chomsky's view of the human language faculty in which repetition is basic. For example, Lamb (2006:301) writes, "people learn as units any combination that has occurred with sufficient frequency or to which sufficient attention has been given." Furthermore, we learn from these and various other sources in the literature that humans are born with natural biases towards the segmentation and classification of input. We file away complex streams of data into webs of associations based on perceived similarities we may not even recognize on a conscious level. To maintain and further develop that network of understanding, we are constantly monitoring and re-evaluating the world around us, organizing new information into new knowledge as we go. With this phenomenon we consider a principle that Newell & Rosenbloom (1981:2) called the "power law of practice," which they say is "ubiquitous" in all kinds of practice learning. Stated simply, the more we accomplish a task, the faster we become in its performance. Considering quantity of known information along with speed of use, it does not require much of a stretch of the imagination to presume as well that the more we experience, the easier it is to learn from future experience. This assumption leads us to a brief discussion of the concept of complex adaptive systems with respect to language acquisition

As the Five Graces Group (Beckner, et al. 2009:2) put it, "speakers' behavior is based on their past interactions, and current and past interactions together feed forward into future behavior.... The structures of language emerge from interrelated patterns of experience, social interaction, and cognitive processes." Their work grew from the work of John Holland (Beckner, et al. 2009), who described these networks of adapting connections as Complex Adaptive Systems. Even as the macro level of sentient beings exists with a view of time (the arrow of time) utterly different from the timeless world of the atomic particles that compose it, so Holland asserted that such systems of isolated data could recombine into an infinitely variable system of comprehension that could comprehend more than what was originally contained in the component parts.

Several of these references (Duff 2000; Piirainen–Marsh & Tainio 2009; Gánem-Gutiérrez 2009) are grounded in the sociocultural movement. Work in this area gained substantial acceptance in many quarters with the assertion by Firth & Wagner (2007:286) that "SLA research is imbalanced in favor of cognitive-oriented theories and methodologies" and their statement of the conviction that "language – as a social and cultural phenomenon – is acquired and learned through social interaction." One might conclude that by pursuing research within the context of this movement, some proponents of repetition have perhaps gained cover for their work that would otherwise not be sufficiently politically correct.

And so we assert that a widespread network of linguistic data, which is full of redundancies and semantic variations that accompany each word in all its many possible contexts, can give rise to a speaker who is fully-fluent, full of genius and idiosyncrasy. The speaker thus becomes over time richly endowed with innovation and insights of metaphor, all without the necessity of a language acquisition device.[5] The means for developing this network is not unitary, rather it is one that relies on a combination of social interaction, negotiation of meaning, and yes, even exposure to massive amounts of comprehensible input as advocated by Krashen.

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[5] Those who are not familiar with Chomsky's claims about Universal Grammar are referred to an exchange with Ullin T. Place as documented by Schoneberger (cf. Chomsky & Place 2000). Of course, there are hundreds of descriptions of Universal Grammar, but this one is brief and clear and in Chomsky's own words.

3. Bringing back repetition, this time with meaning. Our purpose in this paper has thus far been to demonstrate how repetition has been neglected, and why we believe it is important to reincorporate practice into language teaching. Now, we turn to how we can accomplish this.

Our recommended practices hinge on three key principles:

(1) All input (especially repetitive input) must be meaningful. To that end, learner-initiated focus on specific elements for extra repetition or error correction can be just as valuable as long, uninterrupted presentations of video or text.

(2) Repetition should not mean word-for-word parroting. Words, structures, sounds, and semantic categories should act as a motif, overlaying novel contexts and activities with intrinsic interest and engagement.

(3) Repetition in pedagogy should not be limited to the visual and audio elements of reading, video, etc. Kinesthetics, cognition, and other productive processes are self-monitored in the language learner, and comprise a form of input that is every bit as valuable as those that are externally-generated. Because these processes are internal, they are impossible to observe directly and thus difficult to analyze, but they are real nonetheless.

In these tenets we can see differences between our approach to repetition and both Krashen's Natural Approach and Audiolingualism. We have already indicated a disagreement with theories of language learning that Krashen adheres to (namely, that input is used to merely awaken sleeping linguistic patterns, born into our LAD), but here we note that improvement will not merely come from exposure to more and more video, nor more and more reading. In order to maintain learner motivation and allow the mind to fill in its conceptual network according to its own intuitively understood failings, the answer becomes not more video, but more of the same video, and for as long as the learner may need. This allows for a more solid *i*, prior to trying to add +1.

Secondly, we firmly desire to be clear that our approach should not be confused with a call for reinstating Audiolingualism. ALM was based on the principle that language is a system of habits, and repetition is necessary to embed and reinforce those habits. Our recommended practices assume that language is a system of connections between stored exemplars (concepts, words, sequences of words, structural patterns, etc.), and that repetition merely facilitates the storage and retrieval of exemplars and reinforcement of the connections. Where ALM held that errors were bad, because they created bad habits in speaker behavior, the practices we recommend embrace the notion that learner behavior is not the only way to form mental associations; thus, normal inter-language errors may be counteracted with sufficient repetition of correct language patterns so as to create a preponderance of correctness in the learner's mind, thus increasing the probability of a correct response. ALM theory included the belief that language should be learned aurally/orally before written input is presented. We believe that all forms of input are equally valuable, as long as the student has the foundational knowledge (e.g., the ability to read the target orthography) to make it meaningful.

With respect to the Audiolingual Method's use of repetition, however, a central flaw (along with lack of disregard for meaning and context) lies in the question of type vs. token frequency. ALM used paraphrasing, a form of type repetition, but limited itself to only certain inflections necessary for certain useful variations. These paraphrases maintained as much of the original structure as possible. Other ALM activities generally center on repetition of tokens, to maximize its behavioral conditioning. Since the popularity of ALM, research has generally undermined the strength of token repetition for imprinting memory and influencing linguistic behavior (e.g., Kanwisher 1987; Bavelier, Prasada, & Segui 1994; Bybee 1995). Type frequency has been put forth instead as a key factor in the mental corpus (Bybee 1995:433).

In response to this, our recommended practices harken back to the previous mention of Holland's Cognitive Adaptive Systems, and the concept that a whole can be more than the sum of its parts. We believe that the principles of Complex Adaptive Systems apply to the building of semantic comprehension as well as to grammatical fluency.

In kindergarten classrooms, an entire day may be devoted to a single letter of the alphabet. On *A* day, everything that starts with an *A* is labeled in script, then named aloud. In this way, the student sees the letter in many different contexts, while simultaneously hearing it pronounced with every variant of inflection, emphasis, pronunciation, accent, etc. This confluence of *A*, then, supposedly coalesces into a single concept, reinforced by the rewarding and engaging activities of the day. For purposes of adult acquisition, any naturalistic conversation, such as a movie scene, does the same thing as a word is repeated in various, sometimes wildly different utterances, all with some commonality that contributes to the acquisition of word sense. Then, of course, this structured process reinforces the concept with an interesting storyline, simultaneously offering multiple sensory inputs to engage learners who possess different learning styles. Students are then encouraged to produce language using the same elements repeated throughout the lesson, creating slightly different contexts over and over as they converse.

Imagine, for example, what would happen if the method discussed above for learning the first-language with the letters could be used to explore related word meanings. For example, students might be given a word to study, and exposed to as many meanings as possible, through as many modalities as possible, in as many contexts as possible, repetitively and through engaging activities. The natural tendency to categorize should extend to semantic similarities in addition to grammatical ones and should help develop the grasp of nuance, connotation, metaphor, and appropriate linguistic creativity, all attributes of a native speaker.

The genesis of these recommended practices with respect to engaging and meaningful repetition is based on work done at Brigham Young University and the US Air Force Academy. First came work at Brigham Young University (BYU) in the early 1980's on the annotated version of the Mexican movie, *Macario* (Schneider & Bennion 1982). Shortly thereafter, another project explored the concept of annotations using the movie, *Raiders of the Lost Ark* (Branvold, Chang, Probst, & Bennion 1986). Each of these projects explored the notion of using movies, which are by definition inherently engaging, accompanied by annotations to help ensure comprehension. The *Macario* project specifically mentioned the use of repetition, “the student can stop the film and back it up, repeating portions as often as desired. If two repetitions in Spanish fail to produce comprehension, the system makes the English soundtrack available” (Schneider & Bennion 1982:36)

Where that work targeted students at the intermediate to advanced level taking courses in Spanish literature, work at the US Air Force Academy in the late 80’s targeted beginners (Bright, Verano, and Cubero 1991; Bush 2008). This software enabled the viewing of video segments from videodisc, enhanced with various options for controlling playback. Learners could stop the video, see the transcript of the current segment, and then click on words to see definitions in English. They could also play segments as many times as desired. Additional activities enabled the development of sound to symbol correspondence by jumbling: (1) sentences within each video segment, (2) words within each sentence, then (3) the letters of selected words from key sentences. The video was engaging due to the story-based nature of licensed programs such as *French in Action* and *Destinos* for Spanish and the availability of definitions helped ensure comprehension. The ability for each student to control the video and to complete the various exercises provided repetition according to individual need. Furthermore, subsequent research demonstrated that such interactivity improves learning outcome (Moraco 1996). Given Krashen’s dismissal of the value of such enhancements, these findings are at the same time interesting and quite ironic. The developers had based a lot of their work on Krashen’s theory of comprehensible input and felt the interactivity actually broadened the range of learners that could benefit from a given video program.

Current work at BYU falls into two categories, each of which can include annotations that support meaningful repetition. Feature films provide engaging input that language learners are happy to view over and over, as a whole or segment by segment, and are being explored by the Electronic Film Review (EFR) project (Chen 2009). In another project researchers are developing streaming capabilities that combine various features of the work described above and more. Rather than needing the sort of specialized hardware of the past, such as videodisc players that are massive compared to today’s technologies, the video will be deliverable on the typical Internet browser. Such a configuration can benefit from tools that are accessible using Web services for obtaining definitions and translations to insure that repetition is meaningful.

Finally, in a vein similar to our recommended practices for video, Gatbonton & Segalowitz (2005) have proposed a communicative language teaching methodology that targets the development of what they term automatization. Specifically, their work highlights the importance of repetition of key phrases, or “Essential Speech Segments” (2005:328) for promoting fluency.

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4. Conclusion. In short, we believe that the time has come to re-introduce meaningful repetition into language acquisition theories and the language classroom. We invite experiments to measure the effect of repetition, and we encourage language teachers to use meaningful repetition without shame.

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WRITTEN LANGUAGE AS PRECURSOR TO DIGLOSSIA: A CASE STUDY OF *WU*

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Abstract. In a community in which two languages are spoken, the relationship between the two languages may be either temporary, in which one language may be lost in a short time, or it may last over several generations. Either of these relationships may be considered to be bilingual. However Fishman uses bilingual to describe the situations of individuals, while a long-term coexistence in which both languages receive recognition in the society is referred to as diglossia. This paper will look at the Wu language spoken in East China in and around Shanghai, and how the use of this language is not consistent with Fishman's use of diglossia. Specifically it will address the lack of written standardization of the Wu dialects and historical attempts to create a written form of the modern language, as well as modern equivalents.

Keywords: Wu, Shanghai, Suzhou, Diglossia, Writing, Standardization

Languages: Wu, Mandarin, Cantonese, Latin

When two languages are spoken in the same community, the situation can be either unstable and thus temporary, or stable, lasting over several generations; the two languages and the manner in which speakers use them are "continuous variables, matters of degree" (Fishman 1989:185). While the term bilingualism can refer to either situation, Fishman uses it to describe the language situations of individuals, with diglossia referring to a situation that has a longer-term stability and is societally-rooted.

With around 90 million speakers, the Wu language of East China is second to Mandarin in number of native speakers. In Mainland China there is significant social and economic pressure to speak Mandarin and abandon one's local dialect. In many cases this means adults speak Mandarin to their children while speaking their local language or dialect to each other. Yet a recent rise in regional pride has resulted in pressure from Wu speakers for a more public presence for the language, even among younger speakers. Gibbons & Ramirez (2004:4) explain that "minority-language maintenance is, in effect, an attempt to resist the cultural power of languages that are spoken by a majority of the population, and/or languages that are, for some reason, socially dominant." Television and radio programs in Wu are on the rise, and Wu has found a wide audience in the form of stand-up comedian Zhou Libo, who uses the Shanghai Wu dialect as a major part of his act. Despite the strong presence of Mandarin in Shanghai, in part due to the high percentage of residents from other parts of China, many neighborhoods still operate almost exclusively in Wu for much of the

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day-to-day business. In some cities, even Western establishments like McDonald's require all employees to be fluent in the local Wu dialect.

Wu speakers - out of economic necessity and political pressure - are typically bilingual, with Mandarin as their second language. The language contact situation is what Fishman (1989) would characterize as bilingualism without diglossia. Spoken in Shanghai, southern Jiangsu province and much of Zhejiang province, Wu has upwards of a dozen distinct dialects with various degrees of mutual intelligibility. There have been no broad efforts towards standardization of the written language in the modern era. In the early 1900's, with the intent to increase literacy for the purpose of reading religious texts, the Moka Garden Embroidery Mission in the city of Suzhou adapted a primarily Taiwanese system of phonetic transcription, colloquially known as bopomofo, and used this to create teaching materials in regional dialects, including dialect versions of the Lord's Prayer (Burkhead 1920). As in other Chinese languages, Chinese characters are typically used in modern times, but to inadequate effect, as character selection varies greatly between dialects and even person-to-person.

This paper will discuss the merits and difficulties in using different systems for writing Wu using either bopomofo or any of the more modern pinyin-derived systems found in most learning resources. It will further consider the importance of establishing a written standard in order for the Wu language to progress from its current language contact situation with Mandarin, bilingualism without diglossia, into a situation of more equal footing: bilingualism with diglossia where "the perceived ethnocultural legitimacy" and "normative functional complementarity" (Fishman 1989:191) is at minimum regionally intact, akin to the status of Catalan in Spain or French in Canada. Then it will address some of the possible causes of the current situation of bilingualism without diglossia. Finally, I outline my plans for further research on the topic of written forms of Wu in order to make a prediction regarding the future of the language.

1. HISTORICAL USE OF BOPOMOFO. In the 1920s a Protestant mission called the Moka Garden Embroidery Mission based in Suzhou[1] published a handful of learning materials for teaching the local residents how to read. At this time a system of phonetic transcription known as zhùyīn fúhào (注音符号, 'phonetic notation signs'), more colloquially referred to as bopomofo, was in use. Written with fewer than 40 glyphs, bopomofo provides an alternative system easier to learn than the more complex Sinitic characters. In this system words are written with anywhere from one to three glyphs, the first representing the initial consonant and the rest covering the final vowel monophthongs or diphthongs. bopomofo glyphs often consist of no more than one or two strokes and are based on Sinitic characters, providing a simpler yet still familiar alternative to characters.

Though initially created to transcribe Mandarin, the national language, bopomofo was later adapted by the Moka Mission to the dialects of Wu spoken in the areas in

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[1] The Moka Mission also published texts from their branches in Shanghai and neighboring Changzhou, using the local dialects spoken in those places.

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which they were active. This trend continued into the 1930s, during which time books were published on the phonetics of the Changzhou dialect (Fang 1931) and neighboring Suzhou (Lu & Fang 1931). This required the creation of new glyphs to cover semi-voiced consonants that are characteristic of Wu yet absent in Mandarin. Many of these later additions were not widely used outside of the Moka texts and therefore never made it into modern computer encoding systems. While some involved simply adding a diacritic to denote aspiration or a change in voicing, others were entirely new glyphs. The result was a system that would have been easy to learn, especially given the similarity to an otherwise known system, but also a system that covered the phonemes found in Wu that are absent in Mandarin. In fact the ease of this system is praised in an introduction to one of these books published by the Moka Garden Embroidery Mission. In the introduction the author writes that the "lessons have been successfully taught to several hundred people," a testament to its apparent ease (Burkhead 1920:21).

However, after the founding of the People's Republic of China and the Communists' subsequent control of the mainland, bopomofo was largely forgotten outside of Taiwan. It can be found today in some older dictionaries, such as (Mathews 1960). bopomofo can still be seen in Taiwan; however, as of 2009 the only official transcription system in use is the pinyin system, and since then the use of bopomofo has been slowly diminishing. One could argue that bopomofo is even better suited to Wu than Mandarin, as Wu has a greater range of possible syllables, and thus less homophony than that found in Mandarin. Due to a great degree of difference in pronunciation and indeed vocabulary between even neighboring dialects of Wu, the use of bopomofo by the Moka Mission served only as a transcription of regional dialects and not in any way as standardization of written Wu. Though bopomofo may have been useful at one point for writing Wu, the simple lack of any widespread understanding of the system, as well as the lack of support in modern encoding systems such as Unicode, makes it an unlikely candidate for the written language today. What we often find instead is Wu written in the way that people in China are most used to writing, that is, with Sinitic characters.

2. WRITING WU WITH CHARACTERS. It is only within the last century that written vernacular Chinese has become widespread. Before then, the written language was what is known as Literary or Classical Chinese (文言文, wényán wén). This created a situation that could be considered analogous to the use of Classical Latin as the formal language of the Roman Empire, while Vulgar Latin, with the many regional variants that ultimately became the Romance languages, was the language of daily life.

One of the earliest widely distributed texts written in the vernacular of the region, that is, a Wu dialect, was the novel Hǎishàng Huā Lièchuán (海上花列傳), published in 1892 and written by Hán Bāngqìng (韩邦庆). It was titled "The Sing-Song Girls of Shanghai" in the English translation. Set in Shanghai and written in both classical Chinese and the dialect of nearby Suzhou,[2] the novel has since been translated into Mandarin (Zhang 1995) and then from Mandarin into English. At the time that "The Sing-Song Girls of Shanghai" was first published, use of the vernacular in writing was just beginning. In addition to writing with sentence structure found in the spoken language, which by that time had greatly diverged from the style upon which the classical writing was based, writers would also often resort to alternative characters (2009). These were often still classical forms, as in the use of 吾 (wú) in place of 我 (wǒ) for the first person pronoun, which is pronounced /ŋu/ in the Shanghai dialect. This was often done, and still is, to distinguish the sentence from a possible Mandarin equivalent. In other cases new characters were created in order to cover the both sound and meaning of a word that existed in Wu but was missing in Mandarin or Literary Chinese. In most cases, these were simply phonetic contractions and not without precedent.

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[2] The dialect of Suzhou was at that time the prestige dialect of Wu.

There are, in fact, plenty of historical contractions in Literary Chinese. Many of these are outlined by E. W. Pulleyblank in his Outline of Classical Chinese Grammar. Pulleyblank (1991:108) argues that the character 勿 (wù), a means of negation and common in modern signage admonishing people to not smoke in-doors or to walk on the grass, was originally a contraction of 毋 (wú 'not, no') and 之 (zhī [possessive marker]).

Often, the contracted characters created for writing dialects are more visually representative. For example in modern Northern dialects of Mandarin we find 甭 (béng [a contraction of 不用 (bù yòng '[do] not use')]. In Wu and Cantonese the equivalent is 甮 (fiòng), using 勿 (wù) in place of 不 (bù), as is common in southern topolects. Common in Wu and appearing in "The Sing-Song Girls of Shanghai" is the contraction of 勿要 (wù yào 'not want'), written 覅 and pronounced fiào.

Another common method of writing Wu that distinguishes it from Mandarin (see above) is the use of replacement characters. This sometimes reflects contractions, such as 这样 (zhèyàng) being written 酱 (jiàng) in many modern Mandarin communications on the Internet, despite the fact that the latter means 'sauce' and the former means 'like this'. However, more often one may find complete syllable-for-syllable replacements where the original meaning of the substituted character is completely disregarded, leaving only the sound as having importance. This is also found in typed Mandarin conversations and is common in SMS communications typed on mobile phones. Homophones are used in place of the more standard character based on the convenience of the input method. However in Wu conversations this is more often a pun or shibboleth, whereas in Mandarin SMS communications it may often be a result of laziness.

An exception to this informal use of replacement characters can be found in the 1889 text, A Syllabic Dictionary of the Chinese Language published by the American Presbyterian Press and credited to S. Wells Williams. In it, sample texts are given first in standard written Mandarin. Then, parallel columns provide the same text in the vernacular of different areas, including Beijing, Hankou, Shanghai and Ningbo. In the latter two, both Wu dialects, the possessive marker 之 (zhī), replaced by 的 (de)

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in Modern Standard Mandarin, is written 个 (ge). The 个 (ge) character is otherwise found in Mandarin in simplified form in 個, a generic measure word. This particular replacement is quite common in casual written Wu. The Mandarin equivalent, 的 (de), is not cognate with it (Williams 1889).

3. WU ROMANIZATION. One somewhat common way of writing Wu that has not yet been mentioned is with the International Phonetic Alphabet. 外国人学上海话 (wàiguórén xué shànghǎi huà 'Shanghai Dialect for Foreigners') by Xú Zǐliàng (徐子亮) is one example that can be found at most large bookstores in Shanghai today. Qián Nǎiróng (钱乃容), current head of the Chinese Language and Literature department at Shanghai University, has published a number of texts on the language, including two dictionaries, one based entirely on IPA and the other using a modified pinyin for the same content. Qián Nǎiróng, in his "Shanghainese Grammar" (上海话语法, shànghǎi huà yǔfǎ) as well as in his History of the Development of the Shanghai Dialect (上海语言发展史, Shànghǎi yǔyán fāzhǎnshǐ) makes regular use of IPA in order to give accurate accounts of pronunciation (Qian 2003).

Unfortunately, at least for the sake of consistency in recording the language, IPA is not the primary method of writing Wu for language learning texts. Variations on the pinyin system used for writing Mandarin are often more common. In his handbook on the Suzhou dialect of Wu (标准苏州音手册, biāozhǔn sūzhōu yīn shǒucè), Wàng Píng (汪平) uses IPA in the first few pages, where he provides a key to his own Romanization system,[3] which is then used throughout the remainder of the book (Wang 2007). Still others provide their own systems. Two popular books available in many Shanghai bookstores - "Self Study of Shanghainese" (自学上海话, zìxué shànghǎi huà) and Survival Shanghainese Phrasebook (临时急需一句话: 上海话, línshí jí xū yī jù huà: shànghǎi huà) - along with many other sentence-based texts, rely heavily on replacement characters. The primary audience for these books is Mandarin speakers, for whom the characters provide an easily remembered guide to pronunciation. For example the first person pronoun, written 我 or 吾 and pronounced /ŋu/, is given in the latter text with 嗯—无(ng—wu) as a close approximation; however the text offers little in terms of phonetic accuracy (Tang & Zhang 2003).

Though many young educated Mandarin speakers are quite familiar with IPA, as this is the primary method of transcribing pronunciation in English textbooks and bilingual dictionaries, IPA is not nearly as common in Shanghainese books as modified pinyin or replacement characters. Rarer still are books such as Lonely Planet's China phrasebook, which includes a section on Shanghainese in which only cognates or more common Mandarin equivalents are used, regardless of the pronunciation. An example of this is the Mandarin phrase xiao xin (小心, 'be careful'), for which the Shanghainese equivalent is given as dūng shing, which would more accurately correspond to the characters 当心 (dāng xīn) and having the same approximate meaning

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[3] Admittedly, none of these systems is particularly confusing. As with Cantonese, glottal stops are represented by k/g or t/d. It is more an issue for the reader that the Mandarin pronunciation be avoided, as much of these non-IPA systems rely on pinyin syllables which do not reflect the pinyin pronunciation.

(175). While this may be of some use to those who have previously learned Mandarin, the lack of clarity in meaning for the characters and lack of phonetic accuracy make it a largely inadequate system for serious learners.

4. Causes of the current state of Wu. As mentioned in the introduction, Fishman describes diglossia as a stable bilingualism at a societal level. It is my belief that the political conditions in Shanghai which have led to the lack of a written language are the primary reason for the status of Wu today. Specifically, it is the influence on the city from the government of the People's Republic of China in terms of language policy that has had the greatest impact on Wu. In contrast to this, the situation in Hong Kong with the history of control by the British who had a fairly hands-off approach to language use among the general public, as well as the "one country, two systems" policy of the Chinese government since the handover, has left the use of Cantonese in Hong Kong more or less intact to the present day. One must also take into account the decision regarding which language to use that was made by authors in the time that the vernacular first became widely used for written works.

To get a better understanding of the discrepancy between the situation with Cantonese and that of Wu, it is useful to look at the political situation of those two cities from vantage point of the last hundred and fifty years. Cantonese is largely developed and is accepted as a legitimate though unofficial dialect/language. Wu has been almost entirely neglected, save for a few specialized researchers.

In the case of Hong Kong, British rule lasted until 1997, at which point it was handed back to the People's Republic of China. Still, the city was permitted to maintain much of its autonomy. In Shanghai, foreign control of the city was less pervasive than it was in the colonial areas, and even that form of extraterritoriality ended around the end of the Second World War. I argue, since there were sections of town which were treated as separate from China and policed by the occupying forces, that this form of control is relevant to the language situation today.

In Hong Kong the local community was largely left to its own devices, with English as the primary language of governance. To some extent this is still the case. In Shanghai, on the other hand, when the Communists took over after World War II, the populace was subjected to the efforts of the government to spread Mandarin as the official State language. That, in addition to the greater emigration of Cantonese speakers to the rest of the world, has created a much greater awareness of Cantonese as a language of China in comparison to any awareness of Wu.

What's more, when people began to write in the vernacular in the last century, a choice was made by authors, many of whom were from Shanghai and the surrounding Wu speaking areas, to use Mandarin to write vernacular texts. In doing so, a number of words and characters were brought into Mandarin from Wu. One such character is that for ràng 'to allow', which was 讓 in the traditional form and 让 in the simplified, using the 上 (shàng) character for the phonetic.[4] This specific instance of simplification borrowed a local Wu shorthand character based on the pronunciation

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[4] See Norman 1988 for further details on this simplification.

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of the word in the Suzhou dialect of Wu at the time (Norman 1988). Specifically it was the literary reading of the character (Wang 2007), for which 上 and 让 were both pronounced sã.(Wang 2007)

As a result of this decision to use Mandarin, there haven't been any major publications using Wu since the time of "The Sing Song Girls of Shanghai". Where does this leave us regarding the future of the written forms of Wu? For that we ought to look at the Internet.

5. FUTURE RESEARCH PLANS. The most likely place to find written Wu, specifically the Shanghainese dialect, is on a bulletin board system known as KDS, from the Chinese 宽带山 (kuāndài shān) 'broadband mountain'. The site, 021kds.com, is known throughout the Chinese-language Internet as the main online hangout for young Shanghainese. The conversations are heavily loaded with local slang, ranging from regularly used variations found in the Shanghai dialects of Wu and Mandarin to odd replacements of characters and even instances of what's been called huǒxīng huà (火星话, 'Martian language').[5]

Beyond general conversations and gossip, there has been a recent trend in China where stories originally written for blogs and online message boards are published commercially. Bloggers are made into novelists often enough that it's become a goal for many people, just as in the West we have YouTube stars signing recording contracts with major record labels. If this trend continues in China, it will be these message boards and corresponding blogs from which the stories will be taken. For that reason we may accept that the culture of the online communities would have a great influence on the ways in which the texts would be written.

A follow-up paper will be looking closely at just that. Using the KDS message boards, it will address specific instances of replacement characters or written variations. More specifically, it will be looking at the possible replacements for particular words, and from that calculating the likelihood of one being used over the rest. It may be that a certain character, common in both Wu and Mandarin, is for one reason or another written with a variant character.[6] I will be gathering a large collection of conversations posted on the KDS boards and from those conversations, with the help of native speakers, attempt to form a clear picture of what form the written language has taken in this context and thus determine where it is likely to go.

It is difficult to say whether Wu will have much of a future. On the one hand, with 90 million speakers it seems unlikely to disappear. On the other hand, in apparently lacking any standard written form and by being under great pressure from a government that prefers another language, it is hard to see how it can survive past the next couple of generations. Already many Shanghainese children are being raised without Wu. It is my hope, with this further research, to be able to point to a system capable of supporting diglossia, were the political situation to change in such a way as to permit it.

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[5] This involves breaking individual characters down into component parts so that 奇 (jī 'odd') may be written as 木可 (mù kě 'wood / be able'). The main purpose, aside from self-expression, seems to be to avoid automated censorship.

[6] As a hypothetical example, if 奇 (jī 'odd') were consistently written as 柯 (kē), with the locations of its component parts changed. This has been seen in some cases with other characters, again possibly to avoid censorship.

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VII

Historical Linguistics

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THE PHONOLOGIES OF SPANISH AND PORTUGUESE AND THE DEVELOPMENT OF PAPIAMENTU

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Abstract. There has been a debate as to whether Spanish or Portuguese was the Iberian language involved in the origin of Papiamentu, a language spoken in the Dutch Antilles, though there is no dispute as to the subsequent influence of Spanish. Evidence supports the idea that Papiamentu was an Afro-Portuguese creole brought to the Dutch Antilles with the slave trade. But this does not explain the origin of the Spanish element in Papiamentu. It has been suggested that Spanish-speaking priests came from Venezuela to teach Christianity to the slaves. An assessment of the mutual intelligibility of Spanish and Portuguese today and an analysis of the changes in the phonologies of the two languages are combined to estimate the mutual intelligibility of Spanish and Portuguese at the time of the development of Papiamentu and to investigate how Spanish influence on Papiamentu began.

Keywords: Papiamentu, Spanish, Portuguese, Ladino, Iberian, Hispanization, Phonology, Mutual Intelligibility, Creole

Languages: Papiamentu, Spanish, Portuguese, Ladino

Papiamentu, an Afro-Dutch-Iberian Creole, is spoken in the Dutch Antilles islands of Aruba, Bonaire and Curaçao, which are close to the coast of Venezuela. These islands were conquered by Spain in 1499, and taken over by the Dutch in 1634 (Jacobs in press:4). The Dutch started importing slaves then, using Curaçao as a slave trading center , but expanded the import of slaves after 1640 (Jacobs in press:13). According to Kouwenberg & Murray (1994:5), many Portuguese Jews went to Curaçao after the Dutch lost their Brazilian lands in 1654. Papiamentu arose on Curaçao, which had become the slave trading center of the Caribbean. According to Maurer (1986:108), Papiamentu was stable by 1700.

1. The origin of papiamentu. There is a debate as to whether Spanish or Portuguese was the Iberian superstrate language for Papiamentu. One of the two main positions is that Papiamentu is a Spanish-based creole derived from Spanish and indigenous languages, which was subsequently influenced by slaves speaking a Portuguese-based pidgin and by Portuguese Jews who emigrated to the Antilles. Munteanu (1991), Wood (1972) and Ferrol (1982) take this position. One of the theories of the origin of Papiamentu discussed by Wood says that Papiamentu began in the Antilles and is an Afro-Spanish creole (1972:18). This explains African influences in Papiamentu but then needs to explain Portuguese elements in the language, as well as how the creole was maintained after the Dutch took over the Antilles in 1634. Another theory, which Wood says was proposed by Bickerton, is that there was a largely Spanish

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affiliated creole which was once widespread in Hispanic territories and which had a West African Creole Portuguese substrate (1972: 20). This theory has the advantage of accounting for African, Spanish and Portuguese elements in Papiamentu. Ferrol (1982:47) posits a Portuguese substrate to this pan-Caribbean Spanish-based creole as a way of explaining Portuguese features in Papiamentu. He cites Van Balen's idea of a primitive Spanish/Indian-based jargon spoken on the island which was very heavily influenced by the Jews. This gave rise to primitive Papiamentu which was then influenced by the Spanish of the surrounding countries (Ferrol 1982:21).

The other main position is that Papiamentu is a Portuguese-based creole derived from a West-African Portuguese pidgin, which was subsequently influenced first by Spanish-speaking Catholic priests and later through trade with Spanish speakers in neighboring countries. Megenney (1984) and Maurer (1986) believe Papiamentu to be a Portuguese-based creole later influenced by Spanish, whereas Jacobs (in press) has a modified version of this position. He believes that Papiamentu is derived from Upper Guinea Creole, also known as Cape Verde Creole, (in press:3) , and that Cape Verde Creole/Upper Guinea Creole was brought to Curaçao by slaves (in press:15). According to Jacobs, it was then heavily influenced by Spanish (in press:3). Evidence for Jacobs' views comes from the strong linguistic correspondences between Papiamentu and Upper Guinea Creole and from the socio-historic context of the development of Papiamentu. The linguistic correspondences include the prepositional system (Jacobs 2009:333) and the pronoun system (Jacobs 2009:326). As to the socio-historic context, there is evidence of specific shipments of slaves from Cape Verde to Curaçao. The leader of the Curaçao settlement asked for Cape Verde slaves (Jacobs in press:14). The Dutch dominated slave trade in the Upper Guinea area from 1627 -1678, and it was run there by Dutch and Portuguese Jews (Jacobs in press:13).

2. SPANISH INFLUENCE IN PAPIAMENTU. Jacobs' view that Papiamentu was overlaid by Spanish on arrival in Curaçao (Jacobs in press:3) is supported by Kouwenberg & Murray's comment (1994:5) that the earliest stratum of Papiamentu was covered by a considerable number of Spanish words. The situation of the Hispanization of Papiamentu is not controversial. It is the origin of the Spanish influence which has been the focus of debate.

So how did Spanish come to influence Papiamentu? Maurer (1986) describes Spanish influence as occurring through mixed marriages between Dutch or free colored people and Latin American partners, commercial and cultural contact between Curaçao and South America, the use of Spanish as the language of instruction in various colleges in the 19th and early 20th centuries, and through the religious acculturation of the Africans by Spanish-speaking priests from Venezuela, work which was carried out in secret for a long time (1986:101). Munteanu concurs with this last point, saying that Spanish-speaking priests from Venezuela went to Curaçao to teach Christianity to the slaves (1991:47). Another factor that must be considered is the influence of the Portuguese Jews.

So why did Venezuelan priests go to Curaçao to teach Christianity to the slaves? The answer to this lies in the history of the Antilles before the Dutch invasion in 1634. When the islands were conquered by the Spanish in 1499, as previously mentioned, the nearest Roman Catholic diocese was in Venezuela. According to Lampe (2005:130), the Dutch Antilles became part of the diocese of Caracas in 1638, only four years after the Dutch took control. But Korth (1968:116), in reviewing editions of documents relating to the history of the Roman Catholic Church in Venezuela, says that the diocese of Coro was established in 1531 and that the administrative center moved to Caracas from Coro. This means that there was a link between Venezuela and the Dutch Antilles in terms of ecclesiastical administration from 1531, so the visits of the priests to Curaçao were part of this relationship.

3. THE SPEECH OF THE PRIESTS AND THE SLAVES. There is, however, the question of how the Spanish-speaking priests managed to communicate with the slaves, who spoke African languages. How did the slaves understand new concepts taught to them in a different language? The priests spoke Latin American Spanish, which in some ways is a variety closer to Portuguese than Standard Castilian (Lapesa 1959: 348, 349, 354, 355).

According to Lapesa (1959:355), similarities between Latin American Spanish and Andalusian speech are closest in islands or coastal regions because of the domination of the initial colonization by Andalusians, who spoke the southern variety of Spanish, and because of the continuing link with the Canary Islands. Venezuela would come into the category of coastal regions. According to Penny (2000:151), some varieties of Latin American Spanish share velarized word-final /n/ with southern Spanish. Other similarities with Andalusian Spanish are the aspiration of syllable-final /s/, the merger of /r/ and /l/ in clusters and their loss in word-final position, and the aspiration of the /h/ which was derived from Latin /f/ (Lapesa 1959: 349).

The slaves, in addition to speaking African languages, may well have spoken Portuguese or an Afro-Portuguese Creole. As previously mentioned, the governor of Curaçao asked for slaves from the Cape Verde islands. According to Rego, in Cape Verde it was the practice to teach basic Christianity and Portuguese to some slaves, known as Ladinos. Such slaves were more valuable because they fetched higher prices. Even more valuable were slaves who were Crioulos, born in the Cape Verde Islands and native speakers of Cape Verde Creole (Rego 2005: 3). This means that both Ladinos and Crioulos would have understood some type of Portuguese and that the concepts of Christianity would not have been completely new to Ladinos, at least.

4. THE MUTUAL INTELLIGIBILITY OF SPANISH AND PORTUGUESE. Lipski (2006:1), in his study of Portuñol/Portunhol, refers to the “high degree of mutual intelligibility” between most varieties of Spanish, including South American and European varieties, and both Brazilian and European Portuguese. Krieger (2003:314) describes Portuguese/Spanish interactions on the borders of Brazil in the context of “effective bilingual competence from Portuguese to Spanish and vice versa.” She explains that “speakers of both languages understand that their common origin, phonological sim-

ilarities and equivalent syntactic structures facilitate mutual understanding of their respective tongues” (ibid.). According to Ethnologue.com, Spanish and Portuguese have 89% lexical similarity, though this is not the same as mutual intelligibility.

Jensen (1989) investigated the mutual intelligibility of Spanish and Portuguese. He concluded that there was 50-60% mutual intelligibility between varieties of Latin American Spanish and Brazilian Portuguese when communication was in the form of airport announcements and TV interviews. He found that there were better results from conversational face-to-face interactions (1989:850) and that Portuguese speakers understood Spanish better than vice versa (1989:851). Jensen’s experiments used Brazilian Portuguese and Latin American Spanish (1989:849, 850). So if there is 50-60% mutual intelligibility between varieties of Latin American Spanish and Brazilian Portuguese now, and if there have been changes in Spanish and Portuguese since the formation of Papiamentu which made them less like each other, it would be possible to assume greater mutual intelligibility then than there is now.

5. Changes in Spanish and Portuguese since 1650. There have been several changes in Spanish and Portuguese since 1650. 1650 is taken as a point in the development of Papiamentu, because, as noted above, Papiamentu was stable by 1700 (Maurer 1986: 108). Maurer (1986:97) thinks that Papiamentu probably developed between 1650 and 1700. One of the changes in Brazilian Portuguese during that time is the palatalization of /t, d/ before /i/ (Camara 1972:44). Another change is standardization in Spanish (Penny 2000:215). Penny (2000:209) says that Spanish was not standardized in the 16th and 17th centuries and that Golden Age Spanish was similar to modern rural Spanish in the absence of syllable-final labials or velars and the presence of atonic vowel variation, so that no distinction is made between atonic /e/ and /i/ or /o/ and /u/. In the 16th century, educated speech was spreading, but the lack of these distinctions continued into the 17th century (2000:210-11). Standardization of Spanish began in the 18th century and continued to the 20th century (2000:215). A third change was the deaffrication of /ʧ/ to /ʃ/ in European and Brazilian Portuguese in the 18th century (Teyssier 1980:66-67, Vázquez Cuesta & Mendes da Luz 1971:220-21). Camara (1972:44) mentions the labialization of syllable-final /l/ in Brazilian Portuguese. Lapesa and Agard both refer to the velarization of /ʃ/, /ʃ/ > /x/, in Spanish. Lapesa (1959:247) says that both /ʃ/ and /x/ were used in the 17th century. Agard (1984:110) says that /ʃ/ had changed to /x/ by 1700, so both may still have been in use during the time Papiamentu developed.

Teyssier (1980:71) says that in Portuguese the atonic vowels /e/, /o/ became /ə/ and /u/ respectively, in either pretonic or atonic final position, towards the end of the 18th century, and that final /o/ became /u/ in Brazilian Portuguese in the first half of the 18th century, (1980:102-3). According to Ian Smith (personal communication, 2009), there is evidence from Sri Lankan Portuguese that the changes from /e/ to /i/ and from /o/ to /u/ had already happened by the mid 17th century, since Sri Lankan Portuguese, which lost contact with Portuguese after 1658, has both *e* > *i* and *o* > *u* in final position (e.g., /pesi/ ‘fish’ (Portuguese *peixe*), /o:ru/ ‘gold’ (Portuguese *ouro*)).

This would argue that these changes were complete by the mid 17th century. This view is followed in the examples below. The examples show the changes in Spanish and Portuguese which affected certain words common to both languages.

1. Palatalization of /t, d/ before /i/ in Brazilian Portuguese (BP)
   tio 'uncle'
   Portuguese [tiu], > [ʧiu] BP
   Spanish [tio]/ [tiu] > Spanish [tio]
2. Deaffrication of /ʧ/ to /ʃ/ in Portuguese [European and Brazilian]
   chupar 'to suck'
   Spanish & Portuguese [ʧupaɾ], > Portuguese [ʃupaɾ]/ BP ʃupax]/ ʃupah],
   Spanish [ʧupaɾ] [x, h] are allophones of /r/ in BP (Azevedo 2005: 34).
3. Labialization of syllable-final /l/ in Brazilian Portuguese (Camara1972: 44)
   alto 'tall'
   Portuguese [altu] > Brazilian Portuguese [awtu]
   Spanish [alto]/ [altu] > Spanish [alto]
4. Velarization of /ʃ/, /ʃ/ > /x/, in Spanish.
   juego, jogo, 'play'
   Spanish [ʃueɣo]/[ʃueɣu]/ [xueɣo]/ [xueɣu] > Spanish [xueɣo][1]
   Portuguese [ʒogu]

These are examples of some of the changes in the phonologies of Spanish and Portuguese after the development of Papiamentu. These examples show how the phonologies of Spanish and Portuguese have become more distinct since that time and how this greater differentiation affects actual words. These changes mean that the two languages were closer at the time of Papiamentu's development and therefore would have had a higher degree of mutual intelligibility than given in Jensen (1989)'s results.

Burkholder & Johnson (1990:104) give a table showing travel to Spanish America from Spain in the 16th and 17th centuries. This shows that the system of fleet sailings began to fail after 1580 and was breaking down by 1620 (1990:139). Losing contact with the Peninsula would have affected the transfer of changes in language from Spain to its colonies.

6. PORTUGUESE JEWS: SPEAKERS OF SPANISH, PORTUGUESE, AND LADINO. It is important to consider the linguistic profile of the Portuguese Jews. According to de Granda (1974:6), they spoke Portuguese and Spanish. Tavani, quoted by de Granda, says that they encouraged the exchange of phonetic, lexical, sentential, and to some extent morphological and syntactic elements between the two languages. The Portuguese Jews' use of Portuguese and Spanish led to hybrid and dual forms (Tavani in de Granda 1974:6). This indicates that they did not differentiate between Spanish and Portuguese. According to Maurer (1986:98) the Portuguese Jews acted as interpreters for the Dutch in trade with Spanish America and also wrote documents in Spanish. They also spoke Ladino (de Granda 1974: 6), a variety of Spanish similar to Portu-

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[1] According to Macpherson (1975:156), [g] and [ɣ] became positional allophones of /g/ in Spanish during the 16th century.

guese in many ways (Penny 2002: 29) because of its phonetic conservatism. These similarities include the retention of the distinction between /b/ and /β/, or /b/ and /v/, in Ladino (Penny 2000:183), the final vowel system /i/, /a/ and /u/ (Penny 2000:187), and the retention of /f/ (Penny 2002: 27-28). According to Lapesa (1959:335-36), Portuguese influenced Ladino, since many Jews took refuge in Portugal after being expelled from Spain in 1492. There are loanwords from Portuguese in Ladino (Lapesa 1959:337) e.g., *anojar* ‘to annoy’, *embirrarse* ‘to infuriate’, *froña* ‘restaurant, boarding-house’. Voicing contrasts between /ʃ/ and /ʒ/, /ʤ/ and /ʦ/, and /s/ and /z/ remain as they were in medieval Spanish (Lapesa 1959: 335-36).

Mixing Portuguese and Spanish helped blur distinctions, and so made boundaries between them fuzzier. The variation present in Spanish before its standardization in the 18th century (Penny 2000:215), like those in the word-final vowels /o/ and /u/ (as shown in Portuguese [tiu] and Spanish [tio]/[tiu], Portuguese [altu] and Spanish [alto]/[altu] in examples 1 and 3), made people accustomed to coping with variation. In the case of the variation between /o/ and /u/, this meant that one choice of word-final vowel was the same as in Portuguese. Since the Portuguese Jews spoke Ladino, this may have been included in the mix as well. This mixing of Portuguese, Spanish, and possibly Ladino, facilitated a shift from Portuguese to Spanish.

7. CONTACT BETWEEN THE SLAVES AND THE PORTUGUESE JEWS. There is also the question of contact between the slaves and the Portuguese Jews. As previously mentioned, slave trade in Upper Guinea area was run by the Dutch and Portuguese Jews (Jacobs in press:13) and the slaves were likely to have spoken either Portuguese or a West-African Portuguese creole. According to Maurer (1986:98), the Portuguese Jews owned 15% of the slaves in Curaçao, so the slaves and the Portuguese Jews were in contact through the slave process and through the Portuguese Jews` ownership of slaves. This would have given some opportunity for language contact.

8. HISPANIZATION IN PAPIAMENTU. Some idea of some of the changes due to the process of Hispanization in Papiamentu can be seen by comparing Papiamentu as it is now with Papiamentu in previous times. The first examples come from the earliest extant letter in Papiamentu, written in 1776 by a Portuguese Jew and taken from Ferrol (1982:82-83).

Papiamentu in 1776 letter	**Contemporary Papiamentu**
borbe	*bolbe*
aflicaõ	*aflikshon*

Table 1. 18th-century and contemporary Papiamentu.

Ferrol (1982:82) notes that the change from /r/ to /l/, as in *borbe* / *bolbe*, is very common in spoken Papiamentu today. Wood (1972:28) notes that *aflicaõ* is derived from Portuguese *aflicão* ‘affliction’. There is a Spanish word *aflicción* with the same meaning (Concise Oxford Spanish Dictionary 1998:17), so it would seem that Papiamentu had adapted the Spanish word to fit Papiamentu phonology by the 19th century.

Papiamentu in early 19th century	Contemporary Papiamentu
fika (auxiliary verb) < Portuguese *ficar* 'to remain, stay'	*keda* (auxiliary verb) < Spanish *quedar* 'to remain, stay'
kumisá 'to begin, start, commence' < Cape Verde Creole *kumesa* < Portuguese *começar*	*kuminsá* 'to begin, start, commence' < Spanish *comenzar*

Table 2. Early 19th-century and contemporary Papiamentu

The forms in Table 2 are taken from Jacobs (in press: 9). Jacobs says that most of the functional verbs in Papiamentu come from Cape Verde Creole/UGC, but most of the content verbs in Papiamentu show Spanish influence. However, *keda*, an auxiliary verb, is from Spanish *quedar*, a content verb. Jacobs notes that texts from the early 19th century show the use of *kumisá* 'to begin, start, commence' derived from Cape Verde Creole *kumesa*, which in turn is derived from Portuguese *começar* 'to begin, start, commence'. He says that in modern Papiamentu *kuminsá*, from Spanish *comenzar* 'to begin, start, commence', is more common (in press:9).

9. The process of Hispanization in Papiamentu. Since the Portuguese Jews spoke three very similar languages, Ladino, Portuguese, and Spanish (de Granda 1974: 6), and as shown above, there was a closer relationship between Spanish and Portuguese then, the similarities amongst Ladino, Spanish, and Portuguese could have facilitated Hispanization. The influence of the Spanish-speaking priests (Munteanu 1991:47, Maurer 1986:101) resulted in Spanish being the language of religion (Jacobs 2009:321). These factors combined to start the Hispanization process much earlier than might otherwise have been the case. Because of contact through Spanish-speakers marrying into the community and through trade (Maurer1986:101), both of which factors related to the geographical location of the Dutch Antilles, there would probably have been a longer-term effect in any case, but the work of the Spanish-speaking priests helped to begin the process much earlier. Spanish was used in education in the 19th and 20th centuries (Maurer1986:101), which helped to carry on the process begun in the 17th century.

10. Conclusions. One consequence of the work of the Spanish-speaking priests was that Spanish became the language of religion on Curaçao and so was part of the Hispanization of Papiamentu. Another element in this was the use of Spanish as a language of education. The greater mutual intelligibility of Spanish and Portuguese at the time of the development of Papiamentu, aided by the greater closeness of the phonologies of Spanish and Portuguese at that time, helped to facilitate communication between the Spanish-speaking priests and the slaves. An additional factor here was that the variety of Spanish spoken by the priests was somewhat closer to Portuguese than was the standard variety of Spanish. However, the effect of the greater mutual intelligibility of Spanish and Portuguese, aided in part by the type of Spanish spoken by the priests, would not have been effective without at least some of the slaves speaking either some Portuguese because they were Ladinos, slaves who had been taught both Portuguese and the basics of Christianity, or Cape Verde/Upper

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Guinea Creole, because they were crioulos, born and brought up in the Cape Verde islands. The influence of the Portuguese Jews, who spoke Spanish, Portuguese and Ladino, was another part of the picture, because they used hybrid forms and did not differentiate much between Spanish and Portuguese. They would also have been a source of Spanish words to the slaves they owned. These factors helped Spanish influence on Papiamentu to begin much earlier than the influence from contact through Spanish-speakers marrying into the community or through the use of Spanish in trade with countries where Spanish was spoken, though these latter factors were also part of the Hispanization of Papiamentu.

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IN THE SERVICE OF SOUND:
OLD OCCITAN ORTHOGRAPHY AS PHONETIC TRANSCRIPTION

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Abstract. The creation of early Romance orthographies was very much aided by the fact that the Latin alphabet had been redefined as a system of phonetic transcription. There are three lines of evidence to support the idea that one of these early orthographies, that of the Old Occitan of Medieval France, was used to represent speech phonetically. The multilingual descort (cf. fn. 1 and 2) of Raimbaut de Vaqueiras, written in five different Romance languages, turns out to be just an Occitan transcription of these languages. The Occitan grammar of Guilhem Molinier says little about spelling and focuses almost entirely on pronunciation, implying that the orthography of the language is phonetic. French and Italian manuscripts often transliterate Old Occitan songs into these languages, showing that these orthographies also were freely used to transcribe other languages. The conclusion is that orthographic reform often presupposes the conversion of a known orthography into a system of phonetic transcription.

Keywords: Orthography, Occitan, Romance, Troubadours, Phonetics, Medieval.

Languages: Occitan, Latin, French, Italian, Gascon, Spanish, Portuguese

Anyone who has ever tried it knows how difficult it is to use the orthography of one language to write another. It should be nearly impossible to use an orthography reflecting the phonemic and even morphophonemic structure of one language to write another with an entirely different structure. The older European orthographies, such as those of Gaelic, English or French, have developed such a complicated relationship between letter and sound that there is rarely an unambiguous way to represent the words of another language, though the producers of the Berlitz guides might be applauded for their efforts. Yet it is an unavoidable conclusion that the spread of writing systems from one language to another could have happened in no other way. In the absence of a set of universal phonetic symbols, the only raw material available to the would-be adopter of a writing system is a writing system devised for another language, hopefully a related or similar language, to make the task less daunting. It was no doubt by imagining the troubles faced by the first person who tried to write French as it was actually pronounced using Latin orthography that led Roger Wright to propose that the anonymous 9th century inventor of the first orthographic system for French must have been some kind of linguistic genius (Wright 1982:129). I would like to argue in this paper that this is a mistaken impression created by our modern immersion in old European orthographies and that the relationship between letter and sound in new orthographies is always necessarily much simpler than it will later become, making them much more suitable tools for orthographic diffusion.

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We know virtually nothing about the creation of the orthographies of the earliest modern European languages, only that writings in the languages begin to appear at certain dates, which may have been well after the invention of the systems employed to write them. Setting aside Gothic and the epigraphic runic writings of the Germanic peoples in the late Roman Empire, writings appear first in Old Irish and English during the 7th century, and in French and German not until two centuries later. According to Wright, the immediate stimulus for the French system was probably their adoption of a phonetic pronunciation of liturgical Latin which Alcuin of York and his team of Irish monks had brought to France during the early 9th century. At some point after this, the French decided to stop trying to write their language as if it were still Latin and developed a new orthography that more closely reflected pronunciation. New orthographies for other vernacular languages then began to appear at an accelerating rate in following centuries, in every case by using the orthography of one language to write another. If this process were so difficult, it should not have occurred with such seeming ease.

Perhaps the most striking illustration of the ease of orthographic diffusion is that represented by an innovator whose work is well documented, the troubadour Raimbaut de Vaqueiras. The first written instances of three Romance languages, Spanish/Portuguese[1], Gascon, and Genoese Italian, have all been independently traced to a particular song of his written in the 1190's, the multilingual descort[2] "Eras quan vei verdeyar." Probably composed as a playful stunt, each verse of this song is written in a different language, except for the last verse, which changes language every two lines. In addition to the previously unrecorded languages already mentioned, there are verses in Occitan and French. This song has astounded scholars for decades because here are found fully developed orthographic renditions of three languages whose written forms would not appear otherwise for a century or more. It makes Raimbaut seem to be some sort of linguistic genius such as that envisioned by Wright as the innovator of French orthography three centuries earlier.

I show elsewhere (Hagman 2006) that this may be no more than an illusion created by the workings of the philological process. If one goes back to the actual manuscript versions of the song upon which modern editors have based their editions, one finds that in most cases one does not find these languages represented in what would later become their proper orthographies, but rather in approximations using then current Occitan orthography. The fact is that all of the song compilations containing this song were assembled long after the song was composed and their compilers tended to take advantage of orthographic representations not available in Raimbaut's time. It seems that modern editors have gravitated to the corrected versions when deciding

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[1] In some manuscripts, the language is more like Spanish; in others, more like Portuguese. The two were very similar at the time. In either case, it would be the first written instance.

[2] The descort was a troubadour song form in which there was a deliberate irregularity, usually a disagreement between the nature of the melody and the words of the text. In this case, the irregularity is purely a linguistic one within the text itself.

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between alternate manuscript renditions, thus creating an illusion of orthographic brilliance on Raimbaut's part.

In Appendix 1 there is a translation and language breakdown of the song, followed by two versions. The first is that of Crescini (1923), a version which has become the basis of that used in all of the modern anthologies. The second is one I constructed by selecting the most frequently occurring words and phrases in the nine extant manuscript versions (Hagman 2006). Note that, while in Crescini's version it is easy to identify the Italian, French and Gascon verses by their orthographies, this is by no means the case in the reconstructed version, which replaces the distinctive characters and letter combinations of these languages with Occitan characters that would be pronounced in a similar way. If there were an original manuscript version of this song, it would have to have been much closer to the reconstructed version than to Crescini's. Though we may for this reason have to take away Raimbaut's laurels for the invention of three orthographies, we must still credit him with considerable phonetic talents for using the orthography of his own language to represent three others. On the other hand, he may have composed and transmitted the work orally and left it to the later manuscript compilers to decide on how the languages would be represented, in which case the credit for phonetic accomplishment would pass to them.

However, we may want to consider the possibility that the whole process might not have been as difficult as one might think. The Occitan orthography that Raimbaut and his compilers were using was in many ways closer to a transcription system than to what we usually think of as an orthography. Spelling in troubadour texts is notoriously chaotic with multiple possible spellings for even simple words. For example, in the glossary of the Anthology of the Provençal Troubadours the one-syllable word meaning "I want" is listed with twelve different spellings (*vuelh*, *vuell*, *vuoil*, *vuoill*, *volh*, *vuolh*, *voilh*, *vueill*, *voill*, *voil*, *vueilh*, *vuyll*), and that represents only the instances found in this small anthology of edited works (Hill & Bergen 1973:244). There were, in fact, no conventionalized spellings, and there were so many acceptable ways of spelling a word that the only practicable way one could have written the language would have been to sound out the words and transcribe them sound-by-sound. With no strict conventionalized association of letter with sound, however, one might easily transcribe different occurrences of a word slightly differently. In fact it is not at all unusual to find two occurrences of the same word spelled differently within the same sentences even in formal manuscripts. Clearly, orthographic inconsistency was not viewed as a problem, and one never finds the spelling of a word corrected.

One receives a very striking impression of the extent to which conventionalization of spelling was foreign to Old Occitan when one consults the grammar of the language written by Guilhem Molinier and published in 1356 (Anglade 1919). This was by far the most extensive description of the language in the Middle Ages and was quite advanced in grammatical thinking for its time. However, almost no advice is given on spelling, except for three small instances scattered about its 150 or so pages (Hagman 2010:33). Everywhere Molinier talks about the grammatical forms of the language and how they should be pronounced, not how they should be written.

There is throughout the work the implication that the writing of the language directly represents its pronunciation. When there is any doubt regarding the correct pronunciation or usage of a word, his advice is to follow the practice of the most famous troubadours of the past, something one could only know from available written texts. It follows from this that if the famous troubadours seem to have pronounced a word in a variety of ways all of them must be considered correct, even though the spelling in each case may have been selected by the manuscript compiler and not by the troubadour.

It is perhaps ironic that scholars of Old Occitan have been proud of pointing out that while other written languages like medieval French and Italian were fragmented into dialectal forms, the Occitan language remained remarkably consistent over the region where it was used. This is referred to as the unity of Old Occitan and is looked upon as a characteristic which set this language apart from the other literary languages of its time. However, it would be more accurate to say that the language is consistently chaotic, with a variability so severe that it is impossible to assign a particular writing to a particular region. Much of this impossibility of seeing any connection between variation and geographical region is due to the fact that our knowledge of the most important literary works is based on manuscripts produced a century or more later, most of them in a foreign country.

This very last point brings us to another important illustration of the phonetic nature of these early orthographies. In some cases, compilers of troubadour songs in Italy or France would not hesitate to transcribe the songs using the orthographic conventions of their own language, thus making it easier for the people of the region to pronounce them correctly. This means that in such cases a song might not look to us like Occitan at all, though it is clearly not French or Italian either. Appendix 2 has three versions of a popular troubadour song, one from an Occitan manuscript, one from a French manuscript, and one from an Italian manuscript. While the Occitan and Italian versions are quite similar, the French version is divergent, using the letter «*e*» (pronounced as schwa) where one would expect «*a*» (*loete*, *contre*, *oblide*) and the digraph «*ou*» where one would expect «*o*» (*oublide doucor*), as well as making a few word substitutions to avoid unfamiliar Occitan words (*envide m'en pren*, *queu nies de sen*). Both the French and Italian versions use «*s*» intervocalically where Occitan has «*z*» (*jausion, desirer*), since in these languages intervocalic «*s*» would be voiced anyway. Modern editors wisely eschew such bastardized transcriptions when preparing their editions, except in the rare case where such a version is the only surviving example and they have no choice but to use it. Such freedom in the rendition of foreign words by song transcribers indicates a very flexible attitude on the part of the users of early orthographies. In the absence of set spelling conventions, sound is primary, and it is the goal of a writer to produce a document that sounds right when it is read aloud, however this goal is achieved. This can only be accomplished by using letters and combinations of letters familiar to the reader, who would only be confused by the foreign orthographic practices of the region where the song was composed.

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If we are willing to look upon the early Romance writing systems as transcription systems, rather than as orthographies proper, it is easier to see how they could spread from one language to another. Unhindered by conventionalized spellings, one can sound out and write down a foreign language nearly as well as one can sound out and write down one's own, especially if it is a closely related language, though always within the limits imposed by the adapted Latin alphabet. The important thing is to have a writing system in the first place that has some consistent relationship between letter and sound.

I would argue that the only real genius in the creation of the early medieval orthographies may have been the inventor of phonetic Latin, whoever that might have been. We take it for granted that Latin is always pronounced as it is written, but this was not the case in the ancient world. For proof of this, we need only consider the orthographic uniformity of Imperial Latin and thus its failure to represent the extensive dialectal diversity which must have existed in the late Roman Empire.[3] Though we have no direct evidence, as is typical in the Dark Ages, the likely inventors of a phonetic means of pronunciation were the Irish monks ancestral to those who taught it at the court of Charlemagne. Since the Irish spoke a language dissimilar to Latin, and the Romance speakers they encountered pronounced Latin in such a variety of ways, they had no alternative but to read Latin writings letter-by-letter, pronouncing all the letters and pronouncing each letter the same way each time it occurred. What they would have accomplished by this process would have been the conversion of Latin orthography into a phonetic alphabet. Such an alphabet could then later be used to write their own language (Old Irish), then the language of the English (Old English), and then others could use it to develop writing systems for further Romance and Germanic languages. The break they made from Latin orthographic convention, probably as early as the 7th century, may be considered comparable to the one that occurred in Europe in the 19th century culminating in the International Phonetic Alphabet, variants of which have spawned writing systems for many of the previously unwritten languages of the world in the century or so following its invention.

Perhaps it is a truism to say that it is the function of alphabetic writing to reflect the distinctive sounds of speech and that it is just a matter of how well it does so. It is certainly also true that the written form of a language can take on a life of its own, spawn words and constructions not normally used in speech, and gradually become remote from pronunciation over time as changes in spoken usage fail to affect its written form. What is lost in the process is not only ease of learning and use, but also the potential for diffusion to other languages. From what we have seen here, we might want to consider the possibility that the phonetic alphabet may have been invented not once, but many times in the course of history, whenever the requirements of orthographic diffusion had created a strong need for it.

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[3] A concise summary of the diverse types of indirect evidence we have for dialect diversity in the spoken Latin of the Roman Empire can be found in Vulgar Latin (Herman & Wright 2000).

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(APPENDICES FOLLOW)

APPENDIX 1

"Eras quan vey verdeyar" by Raimbaut de Vaqueiras, 1190's
Translation and Language Analysis, based on Linskill (1964)

Occitan

Now when I see the meadows and orchards and woods turn green, I would begin a "discord" on love, on whose account I am distraught, for a certain lady was wont to love me, but her heart has changed, and so I produce discordance in the rhymes, melodies and languages.

Genoese

I am one who has no happiness, nor shall I ever have it, either in April or in May, if I do not have it from my lady. Certain it is that in her own language I cannot describe her great beauty, which is fresher than the gladiolus flower, and that is why I shall not part from her.

French

Fair, sweet, dear lady, I give and commit myself to you. Never shall I know perfect bliss if I have not you and you me. You are a most treacherous enemy if I die through my good faith; yet I shall in no wise depart from my obedience to you.

Gascon

Lady, I surrender to you, for you are the kindest and fairest that ever was, and joyous and worthy, if only you were not so cruel to me. Your features are most fair and your complexion fresh and youthful. I am yours, and if I possessed you, nothing would be lacking to me.

Spanish/Portuguese

But I so fear your anger that I am in complete despair. For your sake I endure pain and torture, and my body is racked. At night, as I lie in my bed, I wake again and again; and since I gain no advantage for myself thereby, I have failed in my intent.

Occitan

Fair Knight, so precious to me is your noble sovereignty

Genoese

That each day I am dismayed. Ah me! What shall I do,

French

If she whom I cherish most slays me, I know not why?

Gascon

My lady, by the faith I owe you and by the head of Saint Quiteria,

Spanish/Portuguese

You have wrested my heart from me and stolen it with your most sweet discourse.

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EDITED TEXT AND RECONSTRUCTED TEXT

Crescini (1923)		Hagman (2006)	
1	Eras quan vey verdeyar	1	Eras quan vey verdeyar
2	pratz e vergiers e boscatges,	2	pratz e vergiers e boscatges,
3	voilh un descort comensar	3	vuelh un descort comensar
4	d’amor, per qu’ieu vauc aratges;	4	d’amor, per qu’ieu vauc aratges;
5	c’una domna·m sol amar,	5	q’una dona·m sol amar,
6	mas camjatz l’es sos coratges,	6	mas camjatz l’es sos coratges,
7	per qu’ieu fauc dezacordar	7	per qu’ieu fauc dezacordar
8	los motz e·ls sos e·ls lengatges.	8	los motz e·ls sos e·ls lenguatges.
9	Io son quel que ben non aio	9	Ieu so selh que ben non aio
10	ni jamai non l’averò,	10	ni enqueras non l’avero,
11	ni per april ni per maio,	11	ni per abril ni per maio,
12	si per madona non l’ò;	12	si per ma donna non l’o;
13	certo que en so lengaio	13	certo que en so lengaio
14	sa gran beutà dir non sò,	14	sa gran beutat dir non so,
15	çhu fresca qe flor de glaio,	15	plus fresques qe flor de glaio,
16	per qe no m·en partirò.	16	per que no m’en partiro.
17	Belle douce dame chiere,	17	Belha dousa dama chera,
18	a vos mi doin e m’otroi;	18	a vos mi don e m’autroy;
19	je n’avrai mes joi’ entiere	19	je non aurai mes joi’ entiera
20	si je n’ai vos e vos moi.	20	si no vos ai e vos moi.
21	mot estes male guerriere	21	Molt estes mala guerreya
22	si je muer par bone foi;	22	si je muer per bona foi;
23	mais ja par nulle maniere	23	e ja per nulha maneira
24	no·m partrai de vostre loi.	24	no·m partrai de vostre loi.
25	Dauna, io mi rent a bos,	25	Dauna, io mi rent a bos,
26	coar sotz la mes bon’e bera	26	quar es la mes bon’ e bera
27	q’anc hos, e gaillard’ e pros,	27	ancse es, e gaillard’ e pros,
28	ab que no·m hossetz tan hera.	28	ab que no·m fossetz tan fera.
29	mout abetz beras haissos	29	Mout abetz beras faissos
30	ab color hresqu’ e noera.	30	e color hresc’ e nouera.
31	boste son, e si·bs agos	31	Bostre son, e si·bs agos
32	no·m destrengora hiera.	32	no·m sofraisiera/destrengora fiera.
33	Mas tan temo vostro preito,	33	Mas tan temo uostre pleito,
34	todo·n son escarmentado.	34	todo·n soy escarmentado.
35	por vos ei pen’ e maltreito	35	Per vos ai pen’ e maltreito
36	e meo corpo lazerado:	36	e mei corpo lazerado:
37	la noit, can jaç’ en meu leito,	37	la neuyt, can jatz en meu leito,
38	so mochas vetz resperado;	38	soy mochas vetz resperado;
39	e car nonca m’aprofeito	39	por uos era profeito/e car nonca mi profeito
40	falid’ ei en meu cuidado.	40	falhit soy en mon cuidado
		40a	mais que falhir non cuide io.
41	Belhs cavaliers, tant es car	41	Belhs Cavaliers, tant es cars
42	lo vostr’ onratz senhoratges	42	lo uostr’ onratz senhoratges
43	que cada jorno m’esglaio.	43	que cada jorno m’esglaio.
44	oi mè lasso! que farò	44	Oi me lasso! Que faro
45	si cele que j’ai plus chiere	45	si sele que g’ey plus chera
46	me tue, ne sai por quoi?	46	me tua, no sai por quoi?
47	ma dauna, he que dey bos	47	Ma dauna, fe que dey a bos
48	ni peu cap santa Quitera,	48	ni peu cap santa Quitera,
49	mon corassô m’avetz treito	49	mon corasso m’avetz trayto
50	e, mot gen favlan, furtado.	50	e mout gen favlan furtado.

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APPENDIX 2

Versions of the song "Can vei la lauzeta mover" by Bernard de Ventadorn (1180's)
(Akehurst 1995:154-156)

Troubadour Manuscript R – Provence 14th century

Can vei la lauzeta mover
De joi sas alas contra·l rai
Que s'oblida laissa·s chaser
Per la dossor c'al cor li vay,
Ai, las! Tal enveya m'en ve
De qui q'eu veya jauzion,
Meravilhas ai car desse
Lo cor de dezirier no·m fon.

Troubadour Manuscript W – France 13th century

Quan vei l'a loete mover
De joi ses alles contre al rai
Que s'oublide et laisse cader
Per la doucor qu'el cor li vai,
He! Tan granz envide m'en pren
De co qu'es si en jausion,
Meravill me qu'eu nies del sen
Et cor de desirier non fon.

Troubadour Manuscript G – Italy 14th century

Quan vei la laudeta mover
De joi sas alas contra·l rai
Per la dolçor q'el cor li vai
S'oblida e·s laisa cader,
Ha, las! Com grand enveia·m ve
De cui que veía jaucion,
Meraveillas ai, car dese
Lo cor de desirer no·m fon.

Translation

When I see the lark move
In joy its wings against the sun,
From the sweetness it feels in its heart
It forgets itself and lets itself fall,
Alas! What an envy I feel
Of him who feels so much happiness,
It's a miracle that because of this
My heart does not melt from desire.

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HISTORICAL LINGUISTICS AND CLIMATE CHANGE

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Abstract: Historical linguistics (HL) may be characterized by a contrast between almost mathematical rigor in some areas, and in others flights of fancy which would more properly belong in poetry. This paper will cite a commonplace theory, articulated most comprehensively by Jared Diamond, that the so-called historical sciences have far less explanatory power than the so-called hard sciences, and it will assume that HL, too, should be grouped under the historical sciences. Recently climatology, specifically the subfield of global warming/climate change (CC), has become a topic of general interest. Some scholars have made convincing arguments which amount to calling for grouping CC with the historical sciences as well, and therefore, CC and HL may be compared based on their shared status as historical sciences. The main purpose of the paper is to argue that HL provides an excellent intellectual basis for understanding the overall field of CC.

Keywords: Greenland, climate change (CC), complexity, historical sciences, variation, nomenclature, clouds, analogy, chance

Languages: Akkadian, Amerindian, Belarusian, Belgium, Central Russian, Classical Arabic, Classical Latin, Common Slavic, Contemporary Standard Russian, Dravidian, Dutch, English, Faroese, Farsi, Finnish, French, Gaelic, German, Germanic, Greek, Greenland Norse, Icelandic, Irish, Ket, Latin, Lithuanian, Lower Sorbian, Mandarin, Navajo, Norwegian, Old Norse, Old Russian, Orkney Norn, Polish, Portuguese, Proto-Indo-European, Romance, Russian, Sanskrit, Scandinavian, Scottish Gaelic, Shetland Norn, Slavic, Spanish, Turkic, Ukrainian, Upper Sorbian, Welsh

> "Imagine trying to figure out what the original Proto-Indo-European word for father was if you couldn't deduce that the Latin word was *pater*, because French had replaced *père* with *Vater* from Germany next door and Spanish had replaced its *padre* with *pai* from Portuguese; nor could you figure out that English had borrowed *pai* from Spanish across the Strait of Gibraltar, whereas the Scandinavians had replaced their *fader* with *isä* from Finnish, and meanwhile over the millennia before you got to the scene, all of these words had been merrily morphing along through sound changes into new words barely recognizable as derived from the original ones." (McWhorter 2001: 103)

Historical Sciences (Humanities Plus) vs Hard Sciences (Mathematics and Physics). Some time ago Diamond (1997: 420-425) suggested that the sciences can be divided into two groups: the so-called hard sciences (e.g., mathematics and physics), and the so-called historical sciences (humanities plus, especially including the biological sciences, according to many scholars). The demarcation between the two groups should not be seen as absolutely rigid, see Orr (2006: 227-29), although describing it as a fully-fledged cline may be going a little far. Diamond (1997: 420-25) points out that the so-called historical sciences (humanities plus) have far less

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apparent predictive and explanatory power than the so-called hard sciences (e.g., mathematics and physics) simply because of the vast number of variables that have to be taken into account in the former, including the oft-cited human factor, with its concomitant uncertainties including simple human error.[1] Other scholars have made similar remarks regarding the biological sciences, e.g., Simberloff describes ecology, as a "branch of science … multifarious" (quoted in Quammen 1996: 482); Wilson (1999: 354) describes evolutionary biology as " … an intellectual caravanserai."

I. THE PURELY THEORETICAL NATURE OF THE HARD SCIENCES. Physics has been dubbed the Queen of Sciences, and certain eminent physicists have allowed themselves to come across as disdainful of other branches of research, leading to an attitude that might be dubbed arrogance, see Orr (2006: 226), and the literature cited therein, also Wilson (1999: 94-95), who sees computer models as a result of physics envy. Wilson's caveat that the theoretical physics/mathematics-based computer models so common nowadays nearly always fail when applied to the historical sciences should be viewed in the light of recent controversies surrounding CC, partly due to its increasingly controversial use of those very computer models, see, e.g., Lomborg 2001, especially 266-72, 294, 297-300, 414 note 2228 "poorly calibrated and unstable instruments," 428 note 2680, below.[2]

The theoretical position of the hard sciences themselves, however, may not be as rigorously secure as their practitioners may assume, from the point of view of predictability.[3] Very often experiments have to be conducted under less than ideal conditions, which render their results considerably more problematic, see Plimer (2009: 338-339), discussed below in greater detail, see also Orr (2000: 79) for discussion of some problems with the oft-cited hypothetical experiment where a group of monkeys might eventually type out the complete works of Shakespeare.

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[1] Diamond includes convincing argumentation in favor of the term historical sciences, and that usage will be followed in this paper, rather than soft sciences.

[2] Computer models as such have been applied to HL, albeit far less extensively than in CC, see Crowley & Bowern (2010:136-59), who give a brief summary of the state of play, and, citing problematic approaches such as glottochronology and lexicostatistics, turn up as many difficulties as skeptics do with CC, echoing Plimer (2009: 145) cited below.

[3] An anonymous referee for this paper suggested that in practical terms modern technology attests to the reliability and predictability of the hard sciences. While this is generally true, it should be noted that, e.g., the all-too-common tendency of certain computer applications to crash and freeze adds a note of uncertainty among this overall "reliability and predictability".

In any case, the very term "science" in English is loaded; I would prefer the use of science in the sense found in most European languages, e.g., Russian *nauka*, which covers a far broader range of scholarship, similar to the use of science in English political science, cf. the following listings in the catalogue (http://disserr.ru/index.html) of graduate dissertations accepted in Russia [translations mine – RAO]: Legal Sciences, Economic Sciences, Pedagogical Sciences, Psychological Sciences, Political Sciences, Historical Sciences, Philosophical Sciences, Philological Sciences, Geographical Sciences, Chemical Sciences, Biological Sciences, Geological and Mineralogical Sciences. Technical Sciences, Agricultural Sciences, Medical Sciences, Pharmaceutical Sciences, Veterinary Sciences, Military Sciences, and Earth Sciences, many of which would not be classed as sciences in English.

The human factor introduces a further complication: fallible humans making errors in the data. Fortey (2001: 188-89, 197-98) actually cites an instance where the use of data from one of the so-called historical sciences–palaeontology (a branch of biology) prompted a rethink of a theory based on data from one of the hard sciences: paleomagnetism (a branch of physics), involving the positioning of the Ordovician microcontinent of Avalonia (modern England and Wales plus Eastern Newfoundland). When different locations were suggested for its positioning, according to either the fossil distribution or the paleomagnetic data, the normal instinct would have been to accept the conclusions suggested by the paleomagnetic data. Fortey, however, shows that, in this instance insisting on the accuracy of the fossil distribution data prompted a reanalysis of the paleomagnetic data, which were later shown to have been faulty, see also Orr (2006:228) for further discussion of the human factor, see also Jacobs (2005:20), Orr (2009:190-91).

Caution, therefore, should be exercised in automatically ranking the hard sciences above the soft sciences from the point of view of rigor. The progress of human knowledge should not be viewed as a straight line. The fact that fallible humans are involved in doing hard science has introduced errors and irregularities into the field. The career of no less canonical a figure than Galileo is indicative, see Orr (2006:228). As the sheer complexity and number of variables involved in CC becomes clearer, we might expect that field to provide many similar examples. Here it should be noted that Plimer (2009:145): refers to the Antarctic Climate Anomaly. At first sight, to the educated, non-physicist layman, it might be expected that if CC were a hard science similar to physics and the claims of physicists were valid, it would be free of anomalies; Colarusso 2003, however, discusses the issue of anomalies in physics (which he describes as the hardest of sciences) in considerable detail, including the history of the discipline,[4] and makes explicit a comparison with linguistics, albeit synchronic linguistics, and not HL, which would have strengthened his arguments.

2. CLIMATOLOGY (CLIMATE CHANGE/GLOBAL WARMING) AS A HISTORICAL SCIENCE. Echoing Diamond, several authors on CC have drawn attention to the vast number of variables in that area that have to be taken into account, amounting to calls for grouping CC with the historical sciences, e.g., Fagan (2000: xix) on the Little Ice Age (ca. 1350-1850): "Hudson Bay Company history, European oil paintings, the North Atlantic oscillation, Dutch sea defenses," see also Fagan (2008:12); Singer & Avery (2008: 48-50; see also the literature cited therein) add data from outside Europe, especially various Chinese and Japanese records (arrival dates of migrating birds, distribution of plant species, elephant migration patterns, floods and droughts, real earnings (China); dates of cherry blossom viewings and lakes freezing, in addition to weather "events" (Japan)), to show that the Medieval Warm Period (ca. AD 950–1250) was a truly global phenomenon; Brown (2001: 8): "Such reductionism [Ockham's Razor–RAO] is hard to apply to extended atmospheric science and its en-

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[4] Colarusso lists a number of errors and anomalies in physics, such as, e.g., the possible height of a mountain; the flight of the bumblebee; the orbit of Mercury (2003: 10; 12-13).

vironmental connotations. There are so many variables, each and every one difficult to abstract in the **non-laboratory** [emphasis mine–RAO] conditions that obtain." In a similar vein Winchester's study of the eruption of Krakatoa and its impact, albeit not declared a study of climatology as such (2003: 6-7), cited geology, vulcanology, urban studies politics, religion,[5] sociology, economics, psychology as factors to consider in its wider context; Jacobs (see below) provides some further caveats to add to the amount of data that need to be taken into account in the historical sciences. Recently a comprehensive survey of the field of CC has appeared: Plimer (2009), which describes those variables in considerable detail. A glance at the table of contents shows Plimer listing "history, archaeology, geology, astronomy, ocean sciences, atmospheric sciences, and the life sciences" (2009:12), and he goes on to say

> "Climate science lacks scientific discipline. Studies of the Earth's atmosphere tell us nothing about future climate. An understanding of climate requires an amalgamation of astronomy, solar physics, geology, geochronology, geochemistry, sedimentology, tectonics, palaeontology, palaeoecology, glaciology, climatology, meteorology, oceanography, ecology, archaeology, and history (2009:15)"[6]

and

> "Computer simulations tell a different story from reality and indicate that the oceans will soon become acid. Experiments with seawater are flawed because they are done in laboratories removed from the ocean floor rocks, sedimentation from continents and flow of river waters into the oceans. It is these real processes that have kept the ocean alkaline for billions of years. **Laboratory experiments have to provide results in a short time to be reported in scientific journals** [emphasis mine–RAO]. Processes over geological time can't be that easily replicated
>
> …
>
> Computer simulations that ignore observation and natural processes that have taken place over billions of years end up with a result unrelated to reality. Reality is written in rocks, not models based in incomplete information. (2009: 338-39)".

A further complication is cited by Lomborg (2001: 414 note 2228): "poorly calibrated and unstable instruments". Therefore, Simberloff's "multifarious" and Wilson's "intellectual caravanserai", cited above, might equally be applied to climatology as to biology.

3. History: The Case of Greenland. In several ways at the margins of CC, Greenland, especially Southern Greenland, provides an ongoing excellent example of how history must be factored into any discussion thereof.

Greenland was first reached from the south during the Medieval Warm Period, and was first perceived as an attractive destination, see Orr 2011 and the literature cited therein for more details; for discussion of the latest research, see also Plimer (2009: 63-72) for the Medieval Warm Period (2009: 78-79) and for the Little Ice Age.

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[5] Winchester includes a chapter (2003: 317-338) arguing that militant Islam may have been given a boost by the conditions obtaining after the eruption; many of the incidents he describes have a curiously modern ring.

[6] Plimer really should have included linguistics in his list.

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The optimistic outlook of the first settlers in Southern Greenland–simple statements of fact at the time–may be contrasted with that expressed in the much later popular folksongs (falling well within the Little Ice Age):

Greenland Whale Fisheries
(at least 1725, (Williams & Barnes 1959:115))
…Oh, Greenland it is a dreadful place, **a land that's never green**,
Where there's **ice and snow**, and the whale fishes blow, and the daylight's seldom seen…

and:

Farewell to Tarwathie
(ca. 1850, (Darach Recordings 2012))
…**Where the icebergs do fall and the stormy winds blow**
Where the land and the ocean is covered with snow
The cold coast of Greenland is barren and bare
No seed time nor harvest is ever known there
And the birds here sing sweetly in mountain and dale
But there's no bird in Greenland to sing to the whale…

Meanwhile a recent issue of National Geographic (June 2010) has suggested that Greenland may be returning to a state approximating the conditions of the Medieval Warm Period.[7]

4. LINGUISTICS: CLOSER TO THE HISTORICAL SCIENCES THAN TO THE HARD SCIENCES. HL can boast a complexity equal to that of CC. Serious historical linguists are well aware that on those rare occasions when they are actually able to check their reconstructions against real data, they sometimes find that these reconstructions are confirmed,[8] and sometimes only approximated,[9] and therefore it would appear that HL should also be grouped under the historical sciences. This overall complexity of

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[7] In this context it should be noted that the bogs and meadows denoted by the Central Russian toponyms treated by Ahlqvist (2006 12-13; 20-41), apparently denoting the sites of former lakes, may well be the result of CC, and should also be cited within its context. Focusing on roughly the same geographical area, Uino (2006: 358) calls for a multidisciplinary study which would integrate "archaeology … historical sources … linguistics … ethnography and folklore … physical anthropology … [and] … palaeoecology" in order to determine and reconstruct patterns of settlement. In the light of the material cited here, CC should also be integrated into such a study, and make its contribution to a comprehensive survey of landforms, flora and fauna, and archaeology.

[8] For a comprehensive discussion of subsequent confirmation of prediction-based reconstruction, with numerous examples, see Priestly 1972.

[9] Schmalstieg's brief discussion (1980: 6-7) of the almost total loss in Romance of the complex case and declensional system inherited from Classical Latin provides an oft-cited example of such approximations:

> "Certainly the preponderance of the evidence would lead us to reject a reconstruction for Latin which showed case endings (if only the Romance languages were attested). In fact, it is hard to see how anything but bold speculation would ever lead one to such a conclusion. A careful scholar would surely conclude that on the basis of attested languages that it was a provable conclusion that the ancestor language had no case endings. **This is a good example, however, of how speculative fantasy would give us a more accurate account** [emphasis mine–RAO] than a careful accounting of the facts."

linguistics even extends to determining its proper place within scholarship, see Orr (2006: 227-29, 231-32, 234 fn., 235 fn.), and the literature cited therein, also Wilson (1999: 94). All areas of scholarship, not only sciences or quasi-sciences, make use of the term law for phenomena that they seek to explain, and linguistics is no exception. The "laws" of linguistics, however, are generally far too intricate to be easily equated with the laws of mathematics or physics, and in any case, by no means all linguists even use the term "law", see Orr (2006: 229), and the literature cited therein for detailed discussion. Furthermore, earlier optimism over the prospects for the development of mathematical linguistics seems to have declined during the last century. Nowadays it is difficult to imagine any repetition of the comparative optimism expressed by Baudouin de Courtenay in the 1920's:

> *«C'est aux mathématiques de l'avenir qu'il reste maintenant à systematiser les phenomènes psychiques et sociaux. Si ces mathématiques apparaissent, viendra alors le temps d'établir de vraies lois régissant le monde physique et social en général et celui des phenomènes linguistiques en particulier. Ces lois, elles seront bien dignes de prendre place à côté des lois des sciences exactes, exprimées par des formules fixant avec une précision absolue entre les rapports quantitatifs entre les phenomènes physiques.»* (1927-28:325)

Nowadays a more accurate state-of-play assessment is provided by Tabakowska (2003:399-400), who captures the sheer complexity of the field rather nicely:

> "It is now obvious to most that models of natural languages which postulate unconditioned discreteness of linguistic categories are too simplified to (not to say simplistic) to provide satisfactory descriptions of anything but selected samples of presanitised or artificial data.
>
> …
>
> Pragmatic features have to be taken account of, and introducing the human factor necessarily turns deterministic rules into probabilistic principles. On the other hand it allows for subtler distinctions that make possible more comprehensive interpretations and more complete descriptions."

One area where language actually does seem to be mathematical, however, may be glimpsed in the canonical, fairly widespread SOV (Subject-Object-Verb) pattern, as exemplified by constructions attested over a wide range of languages, where SOV word order often implies a host of other features, and knowledge of the SOV pattern in, e.g., Turkic, allows one to map the pattern onto, e.g., Dravidian for language-learning purposes, see Orr (2006: 230) and the literature cited therein. Also, for most of the nineteenth century, developments in Indo-European (IE) linguistics appeared to point more and more clearly to an underlying regularity in language evolution which for a time appeared to be closer and closer to discovery, and which was expected to impart more rigor to linguistics, moving it ever closer to the hard sciences, revealing regularities where previous investigators had seen, and cheerfully accepted, irregularities. The cumulative effect of such discoveries was to lead to the formulation that sound-laws had no exceptions, thus apparently adding far greater scientific rigor to linguistics, see Orr (2006:230-31), and the literature cited therein, for further details. Nevertheless, the apparent tendency towards ever-greater scientific rigor in HL and reconstruction could not be sustained. All sorts of actual exceptions to sound laws kept emerging, as illustrated by, e.g., the Common Slavic third palatalization, which may be seen as an excellent example of a tendency rather than an actual exceptionless law, illustrating the difficulties applying the methods of the hard sciences to many areas of linguistics, see Orr (2006: 231) for further discussion. And once scholars started looking for similar regularities in morphology and syntax, let alone semantics, it became clear that HL was simply far too complicated to be handled in this way, cf. the vast literature on analogy below. Both HL scholars, therefore, and those approaching HL for the first time, simply have to expect that factors like coincidence and mere chance will play a major role.

One excellent example is provided by the dictum "every word has its own history", see Orr (1993:303 editor's fn. (also below)), and the literature cited therein, with all its connotations of arbitrariness and unpredictability. This issue is compounded by clear examples where single individuals exercise a tangible influence on language change. The mere presence of Dutch loanwords in Russian may be traced to one man: Peter the Great, and the time he spent in Dutch shipyards and with Dutch sailors. Dutch loanwords are only recorded as entering Russian during a period roughly coeval with his reign, see Kiparsky (1975: 111-21), and some have remained in the language ever since. This is in contrast to Russian loanwords from, e.g., French, German, etc., which have multiple sources, and where no single individual could have made any appreciable difference. Another such example is the phenomenon where linguistic relationships are guessed at on the basis of one random feature, or where one feature defines a language for people who come into contact with it, even immediate neighbors on occasion.[10] Such speculations are very far removed from the intellectual underpinnings of mathematics and physics. This overall phenomenon, which has to be taken into account by the well-rounded linguist, may be related to a comparable one in literary criticism, where characters in novels are often introduced and then cited by highlighting one prominent feature in their appearance.[11] Linguistics might be said to cover the full range between mathematics and literature, including poetics, see Orr (2006: 227-28), and the literature cited therein.

5. Developing Diamond's Framework. One obvious point of difference between HL and CC involves prediction: while much of the center of gravity of CC involves prediction, HL can never predict changes to come. Alongside mutual dependence and the hierarchy of linguistic elements within a given system, it must deal with

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[10] The presence in certain Amerindian languages of voiceless laterals, perceived as very prominent in Welsh by English speakers, may have been instrumental in the popular eighteenth-century myth of Welsh-speaking American Indians, especially, e.g., Mandan, as well as some in British Columbia, who, partly on the basis of this shared phoneme, were believed to be related to Welsh by early settlers in North America. Sometimes only a single lexeme may be involved. Speakers of Lower Sorbian call speakers of Upper Sorbian *hajak*, derived from Upper Sorbian *haj* 'yes', reminiscent of the French provinces of Languedoc and Languedoïl and Icelanders have developed a nickname for the Faroese–*nógvarar* (< Faroese *nógv* 'much, many'), which to Icelandic ears is a salient, frequent, uniquely Faroese lexeme, although easily derivable from Old Norse *nóg*, see Orr (2006: 227-28, 234 fn.)

[11] This device was especially common in the works of Tolstoy, see de Haard (1979, 1990).

the historical contingence of the social structure.[12] In other words, CC is mostly forward-looking and HL backward-looking. Shermer (2002: 320-23) takes up Diamond's (1997:420-25) framework cited above, pointing out that Diamond has managed to synthesize a falsifiable theory of history, whereby domestication of animals and agriculture always precede writing and advanced metallurgy in the evolution of society. He suggests a way in which Diamond's theory might be falsified (2002:322):

> "If historians discover that Native Americans had an elaborate writing system and advanced metallurgy, yet never developed a correspondingly complex system of farming and domesticated animals, his theory would be doomed."[13]

Despite the immense amount of data accumulated over the past two centuries plus, predicting the course of future language change is still well-nigh impossible, see Orr (1991:163-64), and the literature cited therein. Examples of universal tendencies in language evolution are very problematic, e.g., Bichakjian's neoteny; Klimov's content-ordered typology, see Orr (1999:151-52; 2006:232-33), and the literature cited therein. Very often even first principles need closer definition. One might cite simplification as an ongoing trend in HL, but this simply begs the question: What forms and categories might we expect to undergo/resist simplification? Why does simplification proceed at different rates? Why, indeed, does the course of simplification even seem to be reversed in some areas, producing systems of greater complexity than those preceding them? The history of Lithuanian shows numerous examples of new cases, with the emergence of a new illative based on the accusative, a new allative based on the genitive, and a new adessive based on the locative, see Stang 1966:228-32, Schmalstieg 1987:265-72. The history of Russian also shows at least two examples where new case endings started to emerge and then retreated: the forms conventionally known as Genitive II and Locative II, see Orr (2003:272-73) and the literature cited therein. One theme running through Schmalstieg 1980 is that a pre-inflectional stage may be reconstructed for Indo-European, and that the complicated morphological system of the earliest attested stages of many of the daughter-languages is actually quite late (1980: 4; 46-47; 68; 88, passim). Basing himself on a large corpus of literature, Schmalstieg would reconstruct fewer cases in PIE than the usual eight, and suggests that the complicated verbal structure attested especially for Sanskrit and Greek is secondary. Rather than a one-sided drive towards simplification, therefore, the evolution of language maybe seen as alternating waves of complexity and simplification. One recent problem with such a scheme, however, is hinted at by Trudgill

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[12] For paleontology and evolutionary biology, Gould (1991: 282, passim), uses the term contingency in a similar context. Similarly, in his discussion of analogy Kuryłowicz (1995:143) compares analogy to "rain water which must take predicted paths (drains, sewers, spouts) *if and only if it rains*. But rain is not a necessity."

[13] Complicating the issue further, however, Jacobs (2005:11-26) offers a discussion of Diamond's framework, and then points out that Diamond has only considered one side of the equation, the winners, and that his framework should also include factors identifying the losers as well as the winners. She puts it thus (2005: 20): "But I think he [Diamond] limited its explanatory power unnecessarily by the way he posed his initial Question: *What are the advantages that enable cultural conquerors to win conflicts with losers?*"

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(1992), a truly seminal article, which juxtaposes linguistic developments in Faroese and Norwegian, arguing that languages spoken in small isolated communities, such as the Faroes, tend to manifest all sorts of complex, rare, developments over the whole spectrum from phonetics to syntax, which make the grammar of such languages far more opaque than that of languages such as Norwegian, spoken by much larger communities. McWhorter (2011:15-26) makes similar points by juxtaposing Farsi (relatively less complex) and Pashto (relatively more so), and citing several other complex minority languages from this point of view, e.g., Ket (2011:55-60); Navajo (2011:61-71; 75-78). Meanwhile Trudgill concludes by asking whether languages such as Faroese can ever evolve again, in an increasingly globalizing world, where it is becoming more and more difficult to maintain the degree of isolation which would have been the lot of many small communities over the whole of human history so far.

Another example of a term begging similar questions is furnished by archaism. In HL more archaic and less archaic are also relative terms, to be used with a degree of caution. To take one fairly obvious, albeit extreme, example, probably no scholars would rate, e.g., English as more archaic than German, Slavic more archaic than Lithuanian, or French more archaic than Spanish, overall, and yet for certain features, in phonology, morphology, and syntax, this is a fair statement, see Orr (2000: 91-93; 2009: 195-96; and the literature cited therein). Similar examples abound, sometimes with contrasts across millennia. It might seem incredible that Classical Arabic phonology (as attested from CC VII-VIII AD) would be considered more archaic than that of Akkadian (as attested from 2,500 BC), but this appears to be generally accepted by Semitologists (see, e.g., Owens 2006:10-11).[14]

In contrast, although CC does not seem to involve any simplification as such,[15] one can imagine room for archaism, as a further detail of complexity, although it does not seem to be as big a topic as in HL. Examples do occur to suggest that archaism might be cited in CC. One is furnished by Ben Lawers in the Southern Highlands, which has a unique collection of rare Alpine plants, which may indicate a fairly complex history of glaciation in the general area of the summit (Breadalbane 2014), and therefore it might be seen as providing evidence of an earlier phase of climate. Current theories of CC should consider the possibility of similar islands.

In any case, therefore, many such overarching theories in linguistic development often create more problems than they actually solve.

6. Variation: Nomenclature: Origin. Recently much discussion in linguistics has shifted to outright variation, which is a vast, infinite, unpredictable topic. This paper will restrict its discussion to three individual manifestations of variation in nomenclature.

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[14] The concept of archaism is misleading in evolutionary biology as well, see Desmond (1977: 210) Dawkins (2005: 242).

[15] Although one might charge certain prominent figures with oversimplification of its complexity.

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6.1. Nomenclature: Place Names. With one major exception, Europeans first came into contact with China primarily from the south, by sea, and heard of the imperial capital called *Peking* by speakers of Southern Chinese dialects, and named it so. Later on, many countries opted to replace *Peking* with the *Putonghua* form *Beijing* in official usage. Similarly, it has been traditional in English-speaking countries to use approximate pronunciations of French names for many German and Swiss cities, although this usage is becoming less common, e.g., *Basle* (*Bâle*)/*Basel*, with *Cologne*/*Köln* to some extent constituting an exception.[16]

6.2. Nomenclature: Sea/Land: Ireland. Another factor giving rise to variation in nomenclature is the issue of whether places are originally named from the sea or the land. This can often result in completely different names for the same general location (often referring to separate features), rather than variants in the same form, as with Peking/Beijing and Cologne/Köln cited above. One set of useful examples is provided by place names on the Western coasts of the British Isles, where the Scandinavian names were subsequently borrowed by English:

Scandinavian		**(English)**	**Irish**
(named from the sea)			(named from the land)
Dyflinn ‘black pool’	>	Dublin	*Baile Átha Cliath* ‘town of the hurdled ford’
Víkingaló ‘Viking meadow’	>	Wicklow	*Cill Mhantáin* ‘Mantan’s church’
Veigsfjorðr ‘Veigur ‘s fjord’	>	Wexford	*Loch Garman* ‘Garman’s loch’
Veðrafjorðr ‘windy fjord’	>	Waterford	*Port Lairge* ‘hilly shore’

6.3. Nomenclature: Sea/Land: Wales. A similar process took place in Wales:[17]

Scandinavian		**(English)**	**Welsh**
(named from the sea)			(named from the land)
Öngulsey ‘hook island’	>	Anglesey	(*Ynys*) *Mon* ‘Mona (island)’
(*Öngulseyjarfjorðr* ‘h. i. fjord’)			(*Menai* ‘Menai’)
Sveinsey ‘Sveinn’s island’	>	Swansea	*Abertawe* ‘Tawe mouth’

The above examples have been cited to illustrate the unpredictable nature of HL: every single example cited above has a different history (every word has its own history, indeed), although many, many more could be cited, far beyond the scope of, e.g., a whole volume of LACUS forum.[18]

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[16] Occasionally, place names in one language may even turn up as translations in another, e.g., Belgium has French *Mons*, Dutch *Bergen* for the same city. Some place names have acquired several variants in different languages, e.g., *München*/*Munich*/*Monaco*/*Mnichov*/*Monachium*; *Milano*/*Milan*/*Mailand*/*Mediolan*. The tendency in some English-speaking circles to equate foreignness with French might account for the fact that many Anglophones pronounce Beijing with a fricative instead of an affricate: [beɪˈʒɪŋ] for [beɪˈdʒɪŋ].

[17] (Regarding ‘Menai’) Again, English did not borrow all the relevant forms from Scandinavian: the body of water separating the mainland of Wales from Anglesey is usually known as the Menai Strait.

[18] For example, the theme of the whole of LACUS XXXIII (2007) actually was announced as devoted to variation, cf. Martin Joos’ famous quote: “Languages can differ from each other without limit and in unpredictable ways.” If we juxtapose “every word has its own history,” we begin to gauge the scope of the topic.

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6.4. Variation: Chance. Upon reflection it is obvious that mere chance can play a role in linguistic research. It is quite possible, for example, that if I had not known Gaelic, and specifically in this instance, been studying a map where Scottish Gaelic *sealg* was prominent in a local toponym at the same time as I first read Shevelov 1964, I might never have become interested in the etymologies or the semantics of, e.g., Russian *selezenka* 'spleen', *selezen* 'drake', etc., and might not have written Orr 2008 (see Orr 2008:79-80). Another example is provided by two other cases of variation that came to my notice by chance. As I was preparing this paper as an oral presentation, I received, quite by chance, a copy of Tranter (1993:93-97), who reports two examples of variation within adjacent small communities, from East Lothian, Scotland: a local secluded beach is called *Jophie's Neuk* by residents of Aberlady and 'The Point' by residents of Gullane. Aberlady and Gullane are only a few miles apart, with no barriers, and connected by a modern fast road. Meanwhile Gullane itself (population < 4,000) appears in earlier documents with the following spellings: *Gullane*, *Goolan*, *Golyn*. This is paralleled by THREE pronunciations, on Tranter's own orthography–*Gillan* (outsiders and perceived as "upper class"); *Gullan* (residents of Gullane); *Goolan* (older residents).

It is well-known that Meillet once suggested, as a way of avoiding coincidence in attributing a lexical item to Indo-European that: *«Sauf raisons spéciales, est douteux tout rapprochement de mots qui ne porte que sur deux dialectes»* suggesting that at least three attestations of a lexical item in different branches are needed before it can be reconstructed as Indo-European, which has even become a part of tradition.

But three-way coincidences do occur in HL: Latin *hodie*, German *heute*, Welsh *heddiw*, all 'today', yet the initial /h/ has three different origins (Sihler 2000: 136).

A further example is provided by the orthography of English words connoting island. The silent *s* in English *isle* (< French *île* (< earlier *isle*) < Latin *insula*) was carried over by folk etymology to the unrelated, native Germanic *island* (< earlier *iland* < *ieg*- (German *Aue*; Icelandic *ey*, etc.) + *land*) (also Scottish Gaelic *eilean* < *ey-land*). Similarly, this folk etymological *s* was added to the name of the island of *Islay* (< Scottish Gaelic *Ìle* attested in earlier texts as *Ila*, see Monro (1994:493-94)).

7. Climate Change and Historical Linguistics: Two Points of Interest. One aspect of CC which has recently come in for a great deal of discussion involves prediction. Extensive, detailed, historical studies of CC are readily available, and yet predicting future CC appears almost chimerical, especially in a situation where weather-forecasting (dealing with a far more immediate future) appears laden with its own share of unpredictability. Such a situation finds one of its closest parallels in HL.

7.1. Direct Contact: Language Extinction/Abortion. CC and HL actually come into direct contact on several levels. Most straightforward are cases where languages have actually become extinct through CC and related phenomena: the Tambora eruption of 1816 led to the extinction of the eponymous language (Winchester 2003:292).[19] CC may also have resulted in a phenomenon which might be dubbed language abortion, in cases where it causes dialects to cease to be spoken at the very stage where separate languages might be emerging. Again, Greenland provides a relevant example. We simply do not know enough about the variety of Scandinavian spoken in Greenland before the Greenlanders succumbed to the cold of the Little Ice Age: we can only speculate that it might have evolved along lines similar to those of Orkney Norn, Shetland Norn, or Faroese.[20]

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[19] CC has frequently been blamed for species extinctions and related phenomena, see Plimer

7.2. Direct Contact: Clouds: Metaphor or Actual. Clouds appear in both HL and climatology, both involving turbulence and disorder: obviously as a metaphor in the former and as an actual phenomenon in the latter. Nevertheless the phenomenon displays parallels in both fields.

Shevelov (1964:607) may be credited with introducing the cloud metaphor into linguistics, which he uses to describe the development of the modern Slavic literary languages from various dialect groupings (clouds in the sky on a stormy day, with their constant changes in shape, their building-up, overlapping, merging, separating, and their ability to vanish in an instant). He is particularly good on showing how three East Slavic standard languages Russian, Ukrainian, and Belarusian may be derived from various mergers and splittings among four originally distinct dialect groups thus:

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Galicia/Podolia      Kiev/Polesie Polock/Rjazan Novgorod/Suzdal’
   \    /     \       /     \           /
              Ukrainian       Belarusian           Russian
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In a later work Shevelov goes into more detail, describing the actual situation for which clouds might be a metaphor:

> “ … sweeping population movements … now in one, now in another, direction … [accompanied by] … constant peril, disorder, and instability … partition, apparent lack of social ties, and suppressed cultural life … the destruction or decline of cultural centers … the general situation in [Ukraine involved] the

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(2009:192).

[20] It is no exaggeration to state that the linguistic abortion of Greenland Norse represented some tangible loss here, for the following reasons:

(1) Under a kinder climate the Scandinavian settlements in Greenland might have produced St. Kilda-type communities, based almost exclusively on fishing and fowling, which would have been of exceptional interest for linguists, see Orr (1999:136-38; 142), Hamp 1989.

(2) Typologically, Faroese itself is of very great interest, from the point of view of phonology, morphology, and syntax:

  (a) Even within the framework of the distinctive development of diphthongs in Germanic, the Faroese development of diphthongs from Common Scandinavian long vowels is possibly unique, e.g., **svīn* > [svʊYn] (orth. *svín*); **hūs* > [hʉus] (orth. *hús*), etc., sometimes carried over into their pronunciation of English, e.g., [grimsbʊY], for a complete inventory, see Lockwood (1977: 8-13).

  (b) Faroese has maintained a marked nominative opposed to a zero accusative in a major declensional subsystem for over a thousand years, see Orr (2000:67-68) for further discussion.

  (c) Faroese data are essential for any universals-oriented study of reflexive possessives, see, e.g., Barnes (1986, 1987).

Similar typological rarities might have emerged in Greenland Norse if it had developed along lines similar to Faroese.

> decline and often physical destruction of cities and towns, mass refugee movements of the population [in Ukraine], the emigration of a great many intellectuals … to Russia, and the general collapse of the education system" (1979:387, 393; see also Shevelov 1953)

McWhorter (2001:103; cited in the epigraph) adds some further comments about the complications such processes might pose for linguistic reconstruction.

Clouds also loom large in climatology, as demonstrated by the structure of Plimer (2009, passim), divided into chapters on the Sun, the Earth, Ice, Water, and Air, all including scattered comments on the importance of clouds for CC, and he concludes with a brief summary of why clouds are so complicated for climatology:

> "Climate science is baffled by clouds … Climate models do not do clouds well and don't consider fog and mist, which have the same effect as clouds … As for using cloudless models or models with an incomplete understanding of clouds to predict climate 100 years into the future, forget it" (432-34), see also Brown (2001:11-12 for chaos theory and (50, 60), Lomborg (2001:271-73).

Recently Spencer 2010 has produced a comprehensive study of the role played by clouds, specifically cloud feedback, in CC. His work has already come in for some degree of criticism from certain quarters, but both Spencer and his critics (Dessler 2010) appear to agree on the complexity of the issue of cloud and cloud feedback in CC. Dessler (2010:1526) concedes that "observing shorter-term climate variations and comparing those observations to climate models may be the best we can do."[21]

7.3. PREDICTIVE POWER–ANALOGICAL CHANGE. One of the most difficult problems facing historical linguists is analogy, which deserves a discussion to itself in any comparison of HL and any other of the historical sciences. Analogy is extremely hard to define rigorously, and repeated attempts to do so have not been crowned with success. Indeed, at one extreme its very validity as a concept has been questioned. Here again, much of the discussion is still centered around first principles, e.g., Kuryłowicz's proposed Principle of Analogy No. V: *«Pour rétablir une différence d'ordre central, la langue abandonne une différence d'ordre marginal»* (1949:170; 1995:138) mainly evoked comments such as:

> "The only problem with this law is that it does not tell us which distinctions are more basic than others … more would have to be known about the criteria which determine the relative basicness or centrality of different morphological

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[21] Clouds are well-known in this context as a metaphors for simple chaos; one of the best known examples may be found in Hamlet, Act III, Scene 2:

> Hamlet: Do you see yonder cloud that's almost in shape of a camel?
> Polonius: By the mass, and 't is like a camel, indeed.
> Hamlet: Methinks it is like a weasel.
> Polonius: It is backed like a weasel.
> Hamlet: Or like a whale?
> Polonius: Very like a whale.

Similarly, Spencer (2010:71) cites Joni Mitchell's 1968 song Both Sides Now:

> … It's clouds' illusion I recall -
> I really don't know clouds at all.

As this article goes to press it may be noted that the controversy over the role of clouds in CC is still ongoing.

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> categories … it seems quite possible to imagine languages in which [relational morphemes can be considered more important than morphemes denoting number–RAO] … a language must be examined to determine what categories are more or less central at any given moment in its history."

It might seem that all we could do would be to say that there seems to be a general tendency towards simplification. However, as we saw above, achieving a scholarly consensus even on such an apparently straightforward concept as simplification is problematic, which in turn renders the achievement of any consensus on analogy more problematic still.

The very complex diachronic processes involved in analogical change, therefore, may offer an excellent prism through which to view CC, see Orr (2000:77-82) and the literature cited therein for discussion, especially Leed 1970. The literature on analogy is littered with further comments such as "trial and error …too complex"; "the immense variety of changes"; "economic[22] or political predictions … informed guesses"; "abduction is the guess … the weakest form of inference, for it leaves room for error and variation"; "the vast number of features that have to be considered, and the impossibility of determining whether every pertinent fact or factor has been included"; which appear to approximate very well the current status of CC research. Leeds should be mentioned here for drawing attention to the vast number of features that have to be considered, and the impossibility of determining whether every pertinent fact or factor has been included.[23]

One comment in particular offers a remark which might be applied to both analogy and CC: "it is easier to use analogy [CC–RAO] once it has been observed, than it is to recognize it in the first place" (Janda 1996:2-3). And even when it has been recognized, the actual evidence is often contradictory.[24] The following quote from Shermer (2002) may well be an understatement in this context: "We [presumably historians and biologists in the context, although I would add HL and CC scholars–RAO] may have to work a lot harder than physicists and astronomers in isolating our variables and testing them, but test them we must."

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[22] Cf. Wilson (1999: 219) on economics.

[23] Most theories of analogy concentrate on morphology; Leed 1970, however, points out that phonological features can also provide the impetus for change: his example of the emergence of the alternation in Polish *mnich* 'monk'–nom. pl. *mnisi* being a case in point (see also Huntley 1968 for discussion of a similar set of forms, also from Slavic). Another case of every word has its own history.

[24] The development of declension in Russian provides an excellent example of such contradictory evidence. One declensional subsystem shows the results of morphological, not phonological change, i.e.,

	Old Russian	**Contemporary Standard Russian**	
Nom	rabi	raby-	'slaves'
Acc	raby	rabov	"
Gen	rabъ	rabov	"
Dat	rabomъ	rabam	"
Instr	raby	rabami	"
Loc	raběxъ	rabax	"

The proposed comparison between HL and CC may also be cited as a contribution to an overall framework of consilience as first outlined by William Whewell almost two centuries ago and developed recently by Wilson (1999): “The Consilience of Inductions takes place when an Induction, obtained from one class of facts, coincides with an Induction obtained from another different class. Thus Consilience is a test of the truth of the Theory in which it occurs” (1999:8-14; and passim). In this context Wilson (1999:212) makes a plea for the status of economics as “The enterprise within the social sciences best poised to bridge the gap to the natural sciences, the one that most resembles them in style and self-confidence,” and goes on to suggest (1999:219) that economics is at the “cutting edge of social sciences”.[25] In his acknowledgments Wilson (1999:354) cites a similar range for evolutionary biology, which he describes as “an intellectual caravanserai located near the boundary of the natural and social sciences … a logical meeting place for scholars of diverse interests … those I consulted … range in interest from a scholar in Slavic literature to the Speaker of the US House of Representatives, from Nobel Laureates in the physical sciences and economics to the chief executive officer of an international insurance company.” Similar ranges of interest could be cited for comprehensive works on both HL and CC.

However, Wilson does not appear to have cited any linguists, let alone any HL scholars. Regrettably, this appears to be part of a pattern: scholars in other fields, with evolutionary biology constituting an exception to some extent, frequently ignore linguistics altogether.[26] I would like to conclude by suggesting through this minor prolegomenon that HL be included in such discussions, as argued by the comparison of CC and HL. As has been repeatedly argued throughout the discussion, however, the comparison probably does not exactly fit the framework that Wilson had in mind, yet, as argued herein, irregularity and unpredictability are central to both these fields of scholarship.

While another shows the direct, lineal phonological descendant of its OR equivalent, with no visible interference from morphological factors:

	Old Russian	**Contemporary Standard Russian**	
Nom	golovy	golovy	‘heads’
Acc	golovy	golovy	“
Gen	golovъ	golov	“
Dat	golovamъ	golovam	“
Instr	golovami	golovami	“
Loc	golovaxъ	golovax	“

[25] Wilson actually compares economic predictions to “weather forecasting” (1999:19); perhaps Marxism might be seen as a similar phenomenon.

[26] For example, Shermer (2002:320-23) disappointingly, in spite of titling his subheading “the comparative method,” hardly mentions linguistics, although “comparative linguistics” has been around as a mainstream field for over two centuries.

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VIII

Text

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A STUDY IN TEXT ARCHITECTURE:
PERSIG'S ZEN AND THE ART OF MOTORCYCLE MAINTENANCE

Robert E. Longacre
SIL

Abstract. Persig's book is ultimately an essay in post-modernist philosophy, but the didactic portions are skillfully woven into a narrative on two levels: (a) a narrative-descriptive structure; and (b) a narrative-didactic structure. In the former, the author recites what he sees and feels in a trajectory that extends from Minnesota to the Pacific Coast. The latter could be separated into didaxis and a narrative that emerges in disconnected pieces. Doing this would give us a threefold narrative like a rope woven of three strands: ongoing narrative, backgrounded narrative fragments, and didactic portions. I discuss these three strands briefly here, but postpone most matters to be discussed later in this paper.

Keywords: Narrative Structure, Didactic Structure, Discourse Analysis

Languages: (none)

Consider first the Trip. The narrator of Zen and the Art of Motorcycle Maintenance (hereafter Zen) assures us that traveling on a motorcycle is very different from taking a trip encapsulated in a vehicle: "In a car you're always in a compartment, and because you're used to it you don't realize that through that car window everything you see is just more TV. You're a passive observer and it is all moving by you boringly in a frame. On a cycle the frame is gone. You're in the scene, not just watching it anymore."(4)[1]

Then the narrator explains "Chris and I are traveling to Montana with some friends riding up ahead, and maybe headed farther than that."(4) Thus is established the primary storyline which is maintained throughout the book. When motion verbs occur they are typically in the present progressive, but reference to *the road* in one form or another is the main device that keeps the narrative going. The road is, the narrator explains, preferably a back road or relatively unused road, rather than a main highway or freeway.

But the narrator is concerned with his sights and feelings on the trip. These he gives in a running commentary, beginning with his attempt to point out red-winged blackbirds to his son Chris, who is on the motorcycle with him. This is a long travelogue, as befits a long journey.

Next, consider the didactic portions. Unobtrusively, the narrator explains (7) that a motorcycle trip provides an occasion for one to "think about things at great leisure and length without being hurried" and proceeds to loose upon us the main purpose of his book as per the subtitle "inquiry into values". Right here he harks back to an all-but forgotten institution of the early twentieth century, the Chautauqua (such as

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[1] Bare number references are to Persig's Zen.

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this author attended on a few occasions in his boyhood) when lo! a big top came to town to give intellectual stimulus instead of providing a circus. Using this metaphor, Persig is now set to give a lecture series which starts when he pleases and stops when he pleases—often with an overt reference to the **we are on a trip** motif. This is a masterful way to bring in philosophical concerns which, had they been presented more baldly, might not have found ready readers. Come hear a lecture series presented from a motorcycle! It's as if he is saying, "You'll let me ramble on to my heart's content—until I cast my philosophical net and catch you." We are informed here at the outset of his Chautauquas that the concern will not be with the question of what's new—which he artfully calls "the silt of tomorrow"—but with the more basic question of what's best. So, as thus forthrightly stated, the volume will be "an inquiry into values". Hold your seats; this motorcycle ride, both literally and metaphorically, will involve hills, sharp curves, and occasionally rough terrain.

Finally, consider the fragmentary backgrounded narrative. A shadowy character with a checkered career lurks in the background. In the Dakotas, coming out of the Red River Valley (storyline 1) they are overtaken by a severe thunderstorm. In a brilliant flash of lightning the countryside is lit up, and the narrator suddenly recognizes a farmhouse, a windmill, a fence, and trees where he—not really he but his shadowy former self—has been. The shock of recognition is greater than the shock of the thunderclap. We, the readers, are alerted that there is an untold story in the background. (30). Seven pages later, discussing ghosts and ghost stories with his son Chris, Persig dubs this former self Phaedrus (the name of a pre-Socratic philosopher). The stage is now set: there is a backgrounded drama and its principle actor has been named—albeit not yet identified with Persig, the narrator. From now on, this character will cast a long shadow over the ongoing story as bits and pieces of his story come out (cf. Ricoeur's 1985 discussion of Proust 1981). This secondary story will finally emerge more clearly at the denouement of the over all narrative, where the two narratives and their two principal participants merge. Such, in brief, is the architecture of a masterfully told story—along with its emerging philosophy.[2]

1. "PHAEDRUS" IN THE BACKGROUNDED NARRATIVE. While Phaedrus' intellectual history crops up in the course of the Chautauquas in Part I—along with narrator's disclaimer that all the good ideas he has are from Phaedrus—it is evident that Phaedrus is a quite antisocial person. It finally comes out that Phaedrus is racked with internal tensions that eventually get the better of him. He goes to a rather heavy drinking party one night, and when he comes to after apparently sleeping off his drunk, he finds himself in strange surroundings. His clothes are changed, there are doctors and nurses around, and he finds that he has been committed. He even has a paper in his hands with his name on it that says so. He is puzzled when others explain, "You have a new personality now." He later learns that he has had 28 electric shock therapy treatments (86-88). Part I concludes with a return to the ongoing narrative punctuated by frequent flashbacks, as he recognizes that he is retracing Phaedrus' journey to Montana.

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[2] The interplay of these strands in a novel and its analysis here illustrate the application of the general methodology derived from the system put forth in Longacre (1989, 1990).

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Chapter 10 of Part II continues to present what Phaedrus does: “Phaedrus breaks from the mainstream of rationality in pursuit of the ghost of rationality itself” (109). Another island narrative tells us that Phaedrus, who finished his first year at the university at the age of fifteen, was at the age of 17 expelled from college for failing grades. He was more interested in the theory of hypothesis formation than in the hypotheses themselves. He began to drift laterally (115) and finally joined the army and went to Korea where, at least on his trip home, he falls under the influence of a book on Oriental philosophy—and returns to the University to study philosophy (his earlier studies were in biochemistry). Somewhere along the line it is mentioned casually that Phaedrus spent ten years in India studying oriental philosophy. Eventually his lateral drifting ended.

A brief reference (229) introduces a recurring motif: that of his son Chris’s fear and of a glass door that Phaedrus can’t open. Only on the last pages of the book is it explained that the door refers to a partition that once separated him as a psychiatric patient from his family. Here the narrator asserts that it is Chris that is trying to get through to him—a hint of the role reversal that occurs in the last pages of the work.

It would be selling the book short not to mention Phaedrus’ imaginary dialogues with Einstein, Poincare, Hume, Kant, and Aristotle—only to be driven back to look behind Socrates, Plato, and Aristotle. Here Persig turns out to be a typical post-modernist in his love for the pre-Socratic philosophers. Away with the gang of intellectual hoodlums—Socrates, Plato and Aristotle—who hijacked the train of Western philosophy and consigned us all to follow their lead!

Of considerable interest here is Phaedrus’ struggle at the University of Chicago with the tail-end of the Great Books movement. He apparently frightened his professor out of coming to class, while at the same time his own teaching of rhetoric at the University of Chicago, Navy Pier, steadily deteriorated. Interior tensions continue to pull Phaedrus apart. Insanity? Maybe it’s not he that is insane, it’s rather “the underlying mythos that is insane.” He argues that Reason and Quality had become separated and in conflict with each other and that Quality had been forced under and Reason had become supreme somewhere back then” (368). In a rereading of a passage from Homer, Phaedrus believes that the ancient Greek *arête* ‘excellence’ is simply a way of talking about Quality, which is becoming focal in his thinking. Finally, the Professor of rhetoric and what-have-you attempts to close in on Phaedrus via the study of a Platonic dialogue of that name. At this point his student Persig/Phaedrus routs him in class and is left in undisputed possession of the field. But Phaedrus, suffering heavily from sleep deprivation, is by now on the second link of the cycle, “ Pride, madness, destruction,” and as already narrated, is committed to an institution where shock-convulsive therapy was the order of the day back then.

Returning to the main storyline, the motorcycle trip finds relations between Phaedrus and his son Chris progressively deteriorating. The stage is now set for the grand denouement of the book in which the primary and secondary storylines converge (412 ff). Persig at this point intends to put his son on a bus and to take his own

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life by driving off a precipice into the ocean. Chris is uncontrollably shaken. Persig admits that he is Phaedrus, answers Chris' query "Were you really insane?" in the negative, and things take a turn for the better with Chris repeating "I knew it." There is a role reversal of sorts, as Persig realizes that all along Chris has been carrying him instead of he carrying Chris.

2. The chautauquas. I had originally intended to discuss the content of the Chautauquas, but I find this a staggering assignment. Nevertheless, since the subtitle of the book is an inquiry into values, something of this sort is needed. I will merely summarize the main Chautauquas as Persig gives them. He begins with a discussion of preventive motorcycle maintenance, as he advocates it, against the philosophy of the Sunderlands, which is "don't worry about maintenance, just get it fixed when it breaks down." From this Persig goes on to a discussion of technology and the human spirit, wherein he pleads for some sort of peaceful symbiosis rather then polarization. Further on, he discusses form and function, romantic and scientific views, using the motorcycle and its components as illustrative material. The "Church of Reason" is introduced but never wholly takes center stage. The teaching of rhetoric is criticized as a somewhat hopeless assignment; rather students must be brought to acknowledge quality—which they intuitively recognize—as the measure of their own work and that of others. This brings up the matter of the futility of giving grades, even though the system demands that it be done.

Finally, the matter of quality as a primitive and not a derivative is discussed at great length. Here Persig's dialogues with the great minds of history and philosophy fill page after page. It is really great and exciting reading. Eventually quality or excellence, emerges as the *summa bona*. It is the story of the pilgrimage of a great mind and we need to listen in reverently. I trust that I have had this attitude in spite of the comments that immediately follow.

3. Zen in the title. Persig's whole argument might be summarized in a sentence: Tranquility and making oneself one with the machine is the key to good maintenance. Beautifully put!

But what is this Zen which factors into the equation? It is summarized, e.g., in some ten pages of Google, as Buddhism with its practical foot put forward. As such is Zen simply a pragmatic philosophical discipline or is it inescapably religious? Although apologists for Persig's book might tend to emphasize the former, Persig's own comments point more in the direction of the latter. Buddha is presented as all encompassing in the environment, in the maintenance man himself and in the very machine that he is working on. Affirmations such as these are made that would rather fit Brahma in a system of all encompassing pantheism (80-81). But never mind, eastern religions are seen to grade into each other, not sharply set against each other as are Judaism, Christianity, and Islam (141). And under the familiar metaphor of one mountain with many roads leading to its summit, Christianity is presented as no longer of great relevance (188-89). Zen is certainly not presented to us as simply an ecumenical handbook of pragmatics.

All of this prompts the present author to a dour observation: As countries in Asia, such as South Korea and even mainland China with its ever growing house-church movement increasingly buy into Christianity, thinkers in such post-Christian cultures as North America and Western Europe turn to such religions as Buddhism from Asia for renewed inspiration.

There are those of us who feel that the Judaeo-Christian religious tradition should not be lightly laid aside, lest we come under the ban of the ancient prophet Jeremiah: “My people have committed two evils: they have forsaken me the fountain of living water and have hewn out for themselves cisterns, broken cisterns that can hold no water (Jer. 2.13).”

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IX

Meaning & Translation

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A HARD SCIENCE LINGUISTICS VIEW OF TRANSLATION

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Abstract. The present study deals with the specific aspects of translation of texts between two languages and two cultures, the source and target cultures. The task of translation is a complex one, and it includes discussion not only of possible dictionary translation equivalents but also the workings behind the so called task of decoding and re-encoding from one language to another. This involves the discussion of expectations triggered in the source text reader and the task of the translator to match the expectations triggered in the target text reader. This can be done by anticipating the expectations of the target audience, which is based on previous experience of translators with the particular text genres. These complex subtasks are presented within the HSL (Hard Science Linguistics) model of the task of translation.

Keywords: Translation Studies, Human Linguistics, Hard-Science Linguistics, Sociolinguistic Aspects, Reader Expectations, Expectation Procedures

Languages: English, Slovene

In a traditional view, the role of a translator is to decode the language of a text and then re-encode it into another language. Although this view is still widely held in practice in the field of translation, it is well-known to be deficient, as it leaves out important aspects of social and psychological effect. This paper will discuss some of the key issues and then through an example under study will present an overview of a Hard-Science Linguistics (HSL) approach to translation.

1. Some current research background. There is a research project underway (Burazer in progress) dealing with the sociolinguistic aspects of translation and the way in which and the extent to which they influence the quality of translation. The interim results of the investigation into the translation of a piece of a legal document from English into Slovene have shown roughly that if we compare the quality of translation of a legal text of a translation studies student (TS student) to that of a law student, TS students will show a higher level of proficiency in micro level language skills such as the use of grammar and vocabulary, while law students will show more skill on the macro linguistic level such as the overall use of register (appropriate to legal texts) and overall meaning of the text.

One such example[1] shows that legal students were much less reluctant to use repetition of a certain expression within the same sentence than TS students. TS students were more concerned with the overall text form than with translating the actual

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[1] The example is taken from a short text, a confidentiality clause in an employment contract. The text was used in the experiment to which we refer throughout the paper (Burazer, doctoral dissertation, in progress).

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meaning. Therefore, being concerned with the actual text effect on the target reader, they used reference words instead of repetition: instead of repeating [MANAGER] several times, they used the reference [NJEGA] (in English [HIM]/[HIS]), for instance.[2] This makes sense, since legal experts need to be aware of the possible consequences of texts or text errors in terms of meaning interpretation, therefore they need to be as careful as possible in expressing meaning in as straightforward a manner as possible. They need to make sure that there are no ambiguities.

2. The meaning of a text. According to Stolze (2001:301), a translator translates what s/he understands, whether it be right or wrong, therefore we cannot speak of the source and target texts any more, but rather about a single text or message as understood by the translator as a reader. There is no stable meaning in texts that can be transferred, as if from one language to another. The meaning of texts is heavily dependent on the individual reader, his or her background knowledge, and the framework of previous experience that the text to be interpreted within.

If we refer to the example of the use of reference instead of repeating [MANAGER] cited in the previous section, we can argue that in HSL terms the previous or background experience of the students tested produced specific expectation procedures which led to specific translation choices in the process of translation. The students were not always guided by linguistic or legal restraints – the kind of information taught at schools – which led to translation error.

These same experiences also influence triggering of our expectation procedures as readers and result in either finding the text acceptable (that is compatible with our expectations) or not. The assessors selected showed preference for their field of expertise, which means that language experts paid more attention to language and not so much to the sense and meaning of the translation. On the other hand, legal experts showed more concern for the meaning of the translated texts (mostly appropriateness of vocabulary use and meaning) than the form and grammar of texts.

We can conclude that previous experience with texts as well as other general sociolinguistic experience affects the formation of expectation procedures which are then triggered in the process of translation and result in certain translation choices. On the other hand, previous experiences play an important role in text evaluation as well, therefore the level of translation quality is basically a subjective category, tied to the individual's specific expectation procedures.

Interestingly enough, judged by professional linguists and legal experts on the level of general text acceptability, the TS students scored higher than the legal students tested, even with the group of legal experts. This might be credited to the accidental excellence of the randomly chosen students, or perhaps to the quality of instruction at the TS department in both areas – linguistic and legal.

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[2] Here, [MANAGER], [HIM], and [HIS] represent channel parts in the source English text, [NJEGA], a channel part in the target Slovene text. In HSL a channel is a model of the physical energy flow or means of energy flow within a communicative interaction (Yngve 1996: 128). A channel part is a model of the functional part played by the energy flow or means of energy flow. For convenience of analysis, we break the energy flow into smaller components such as those listed immediately above.

3. FRAMES IN ARTIFICIAL INTELLIGENCE (AI). Authors such as Minsky (1974) and Wilks (1973), whose efforts were in the area of AI, or what has also been called cognitive science, tried to come up with a plausible explanation of the workings of the human brain. Although they drew conclusions based on the reasoning of the results arrived at in their experimental computer research, some of the reasoning could be applied to the explanation of the workings of the human brain.

One such reasoning is that people interpret texts (or all the input from the environment, for that matter) within so-called frames, which are represented in our brains as some sort of blueprints of previous experience. As readers we therefore interpret the text before us on the basis of previous experience. We expect there to be, for instance, an introduction, providing all the necessary data for following the content of the text, the body of the text, providing most of the information, and a conclusion, providing some general insight into what was written before. Just the way we accommodate everything else around us on a daily basis: for instance, when we enter an apartment, we expect to find rooms, in each room we expect to find furniture (stove and fridge in the kitchen, sofa in the living room, tub and sink in the bathroom, and so on).

Yet the meaning of a text can be much more easily represented within the frame of HSL, which offers orthoconcepts and expectation procedures to model the complexities of human understanding in the form of linkages (as illustrated by (1) – (5) below; see Yngve 1996: 263-64, 283-86; Sypniewski in press; see also Coleman 2004).

4. LINKAGES IN HARD-SCIENCE LINGUISTICS AS THEY RELATE TO TRANSLATION. A translator first needs to identify a linkage type in the source text, identify the relevant orthoconcepts present in a reader, anticipate the expectation procedures triggered, and then anticipate the translation solutions which will trigger similar expectation procedures in target readers.

In a (HSL) framework (Yngve 1996), we can model the linkage involving an author of a text, the text itself, and a reader as (1).

(1) [Original] = [Original Author] + [L1 Text] + [L1 Reader]

Here, [Original] represents the physical system that includes the author, the original text in the first language (L1), and the L1 reader. The text is modeled as the channel [L1 Text] and the role parts as [Original Author] and [L1 Reader]. [L1 Text], [Original Author], and [L1 Reader] thus are models of physical subsystems of the communicative interaction as a whole.

We propose the following HSL model of translation. It consists of a set of interrelated linkages.

The translator is also a reader of the book, that is, he is in the role part [Reader1] in the linkage shown in (1), above. But, he is also an observer of the effect that reading the text has on himself. We can describe this via an observing linkage, as in (2).

(2) [Obs Reaction to Original] = [Observer of Original] + [Original]

As (2) shows, an observing linkage models only two subsystems: the observer and the communicative interaction being observed.

When the translator begins the task of outputting a translation into a target language text, he becomes a proxy for the original author. We model this as the additional linkage in (3).

(3) [Translation] = [Proxy Author] + [TL Text] + [TL Reader]

In (3), the translator actually fulfills *two* role parts in the same linkage, both [Proxy Author] and [TL Reader]. He then observes his reaction to the translation. This we model as a second observing linkage (4).

(4) [Obs Reaction to Translation] = [Observer of Translation] + [Translation]

The translator tries to match his/her reactions to [TL Text] in [Translation] to his/her reactions of [L1 Text] in [Original].

There also arises a need for a third observing linkage as in (5):

(5) [Obs Reactions] = [Translation Evaluator] + [Obs Reaction to Original] +
[Obs Reaction to Translation]

Suppose the translator experiences a certain reaction as a result of reading the original; we describe his awareness of this as arising out of his observation in [Obs Reaction to Original] as (6).

(6) [Observer of Original]<[L1 Reader]<X>>

When he reads the translation of his own creation, he experiences a certain effect. We describe his awareness of this as arising out of his observation in [Obs Translation] as (7).

(7) [Observer of Translation]<[TL Reader]<Y>>

We describe how s/he evaluates these two effects in his/her role part as an observer of [Obs Reaction to Original] and [Obs Reaction to Translation]. This is why we need (5).

However, the translator also has an understanding of other readers of the original text and of a *potential* reader of the translation. The translator may never have actually observed anyone reading the original text and no linkage yet exists involving the reader of the translation. Thus we can also represent some properties of the translator as an evaluator in terms of orthoconcepts of other readers of the original and the potential readers, via the notation in (6) – (7).

The translator thus has a complex set of role parts in a group of interlocking linkages: as a reader in [Original] and [Translation], an observer in both [Obs Reaction to Original] and [Obs Reaction to Translation], as a proxy author in [Translation], and as an evaluator in [Obs Reactions].

The events represented in the above linkages do not comprise a simple linear sequence. Rather, in the initial stage, all four linkages asynchronously alternate back and forth — until the translator finds that his resulting properties in [L1 Reader] and [TL Reader] are in a state of near equilibrium.

The translator is the ideal subject of observation for the effects of texts on readers, because he acts as a reader and author at the same time. What the above model also shows is the synchronizing of properties between the author, the translator, and the readership.

The translator as a reader of the source text has the insight into what properties have been triggered in his plex[3] during or after reading the source text. He then, as shown in the above model, needs to find a solution for triggering a corresponding set of properties triggered in the reader by the target text. In order to do that, he also needs to identify the readership norms of the target readers.

A lot of discussion has been going on in TS concerning expectations of readers (Limon 2004, Baker 1998). Some have to do with text genre conventions (also Swales 1990, Toury 1999), others with readers' background knowledge on the subject, yet others with the socio-political situation in the target culture, and the like. Some aspects of translation and translation choices are even tied to the translator's reputation: some people can get away with more things than others. Another important aspect is represented by the instructions or wishes of the one who commissioned the translation (see also Vermeer 1996). The customer is always right principle does not escape the translation business (the reference here is to non-literary translation, of course). Sometimes the translator has to adhere to the customer's instructions for a particular solution in order to comply with their wishes and get paid.

All of the above factors contribute to triggering expectation procedures that the translator needs to match in the effect of the target text. Since we are dealing with two languages and two cultures, there is only a slim possibility that the meanings of the two texts are going to match precisely. This is difficult to achieve even between two persons, let alone between two large communities or even cultures (see Gutt 1991, Kintsch 1988).

5. The ts and law students' translation of [manager]. The short text referred to in this paper is the confidentiality clause of an employment contract. Here is an excerpt containing 'manager':

> "The Manager shall be obligated to keep confidential all information of which he becomes aware during his work for the Company, which relates to or is connected with the Company's business, particularly with respect to business and trade secrets."

In the instance cited, [MANAGER] was translated by the majority of TS students tested as [MANAGER], also with alternative spellings [MENEDŽER]/ [MANADŽER], or as [DIREKTOR], while the law students showed a much wider scope of vocabulary use in this instance and therefore produced translation choices such as [MANAGER] (again with alternative spellings [MENEDŽER]/[MANADŽER]), [DIREKTOR], [UPRAVNIK], [UPRAVITELJ], [RAVNATELJ], [VODJA], [DELOVODJA]. Here, note that [MANAGER] is a channel part component in the

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[3] Yngve (1996:171) defines plex as "the structure of a communicating individual represented as a long list of procedures all interrelated by their categorial and conditional properties in a complex dynamic network."

English text (a functional part of [L1 Text] in the linkage [Original]). [MANAGER], [DIREKTOR], [UPRAVNIK], [UPRAVITELJ], [RAVNATELJ], [VODJA], and [DELOVODJA] are channel part components in the Slovene text (functional parts of [TL Text] in the linkage [Translation]. See Table 1.[4,5]

Law Students (LS)	Translation Studies Students (TSS)
[**VODSTVENI DELAVEC** SE ZAVEZUJE]	[**DIREKTOR** SE OBVEZUJE]
[**MENEDŽERJI** SO ZAVEZANI]	[**DIREKTOR** JE OBVEZAN]
[**POSLOVODJA** SE ZAVEZUJE]	[**DIREKTOR** JE ZAVEZAN]
[**DELOVODJA** JE ZAVEZAN]	[**MENEDŽER** SE ZAVEZUJE]
[**ZASTOPNIK** JE DOLŽAN]	[**DIREKTOR** SE ZAVEZUJE]
[**ČLAN UPRAVE** JE ZAVEZAN]	[**MANADŽER** MORA]

Table 1*. Translations of [the manager shall be obligated].*

Presented below are some of the instances of translations of the students tested, with commentary on and explanation of whether their translation choices for 'manager' were appropriate. Appropriateness has been determined by criteria based on observable use in legal documents as well as choices offered in specialized dictionaries.

In the case cited, the possible acceptable translation solutions would be [MANAGER] (also with alternative spelling [MENEDŽER]/[MANADŽER]) or [DIREKTOR], while [UPRAVNIK], [UPRAVITELJ], [RAVNATELJ] and [VODJA] would not be appropriate in the particular context of employment contract ([UPRAVITELJ] and [UPRAVNIK] are more appropriately used in the context of building management, [RAVNATELJ] is exclusively used in educational contexts, while [VODJA] is a general expression, a hypernym of sorts, corresponding to English LEADER or HEAD, which would not fit in this context either).

> ***Menedžerji** so zavezani k ohranitvi zaupnosti vseh informacij, ki so jih izvedeli v času dela pri podjetju za katerega delajo in so povezani z delom tega podjetja, še posebej pri poslovnih in prodajnih skrivnostih.* APPROPRIATE (LS)
>
> ***Vodstveni delavec** se zavezuje, da bo ohranil tajne vse informacije, za katere bo izvedel v času delovnega razmerja*. LESS APPROPRIATE because it's more general (LS)
>
> ***Poslovodja** se zavezuje kot zaupne ohraniti vse informacije, do katerih bo prišel med delom za podjetje, ki se nanašajo ali so povezane z delovanjem podjetja, še posebej poslovne in trgovske skrivnosti*. INAPPROPRIATE because '*poslovodja*' would be used in a low management position only, such as 'store manager' (LS)
>
> ***Delovodja** je zavezan k varovanju vseh, med delom pridobljenih podatkov, ki se povezujejo z njegovim delom v podjetju*. INAPPROPRIATE because '*delovodja*'

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[4] There are several acceptable possibilities of spelling 'manager 'in Slovene: one is the same as the English original manager, another imitates Slovene pronunciation menedžer, a third possibility is a cross-breed between the original English spelling and Slovene pronunciation manadžer. Menedžer is regarded a Slovene expression, although a borrowing, while the two alternative spellings, manadžer and manager, are regarded as foreign expressions.

[5] There were other translation alternatives produced by TS students, such as [VODJA], [POSLOVNEŽ], both with a more general reference, and others. But the majority used [DIREKTOR] or [MANAGER].

> is used in the construction business in the sense of 'in charge of a group of workers at a construction site' (LS)
>
> ***Menedžer*** *se zavezuje, da bo varoval zaupnost vseh informacij, ki jih pridobi med svojim delom za družbo in ki se povezujejo ali so povezane s posli družbe, posebej glede poslovnih in poklicnih skrivnosti*. APPROPRIATE (TSS)
>
> ***Manager*** *je dolžan, da obravnava vse informacije, ki jih je pridobil v teku svojega mandata v tem podjetju, zaupno*. APPROPRIATE, but less so for the Slovene linguists because of the English spelling (TSS)
>
> ***Manager*** *je zadolžen za ohranjanje zaupnosti informacij, s katerimi se seznani v času, ko dela za podjetje in ki se navezujejo ali so povezane s poslovanjem podjetja*. APPROPRIATE but same as previous (TSS)
>
> ***Direktor*** *se zavezuje, da bo zadržal zase vse skrivnostne informacije, s katerimi se srečuje v času dela za podjetje in ki se navezujejo oziroma so povezane s poslovanjem podjetja, še posebno z upoštevanjem poslovnih in trgovinskih skrivnosti*. APPROPRIATE (TSS)
>
> ***Direktor*** *se obvezuje, da ne bo izdal nobenih podatkov, do katerih bo imel dostop med svojim delom pri podjetju, in ki se navezujejo ali so povezane s poslovanjem podjetja, posebno s poslovnimi in poklicnimi skrivnostmi*. APPROPRIATE (TSS)
>
> ***Menedžer*** *se zavezuje, da bo varoval zaupnost vseh informacij, ki jih pridobi med svojim delom za družbo in ki se povezujejo ali so povezane s posli družbe, posebej glede poslovnih in poklicnih skrivnosti*. APPROPRIATE (TSS)

In the case of detecting the channel part [MANAGER] in the original English text, a set of possibilities is triggered and in the state of readiness to produce output to one of the following channel parts in the Slovene translation: [MANAGER] (also with alternative spelling [MENEDŽER]/[MANADŽER]), [DIREKTOR], [UPRAVNIK], [UPRAVITELJ], [RAVNATELJ], or [VODJA] (and possibly others which were not used in the translations produced by the students tested). These are all possible translations of English [MANAGER] into Slovene, but not all are appropriate to the context, register and co-text of the target text in question. They differ in their specific context as well as frequency of use.

In [Translation] the translator as proxy author needs to make a decision, a translation choice, and then in the role of the observer of the translation in [Obs Reaction to Translation] must monitor its appropriateness.

Asynchronously, the translator's role as the observer in [Obs Reaction to Original] and [Obs Reaction to Translation] alternates to allow him to monitor the appropriateness of the translation decision on the level of the synchronization of the expectation procedures triggered by both the source and target texts. We describe how he does this in [Obs Reactions].

When the state of near equilibrium has been reached, the [Obs Reactions] becomes disengaged.

Now consider translating the channel part [MANAGER] from English into Slovene. We hypothesize that law students have in general more experience with reading legal texts and are therefore exposed to a greater variety of legal expressions

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which might in part or in full coincide with the translation of [MANAGER]. The TS students, presumably having less experience with legal texts, adhered to the more obvious choices and do not show willingness to take risks with less frequent possible translation equivalents for [MANAGER].

In this particular example, the previous experiences of the students tested proved less of an advantage, although this might not always be the case. This sort of creativity more often than not proves to be a positive one, but in the case of legal documents it might be a safer path to stick to the most frequent possibilities.

(8) [law student]<select translation for [MANAGER]> =
<context/employment contract> x <detect/[MANAGER]> x <?> ::
<output/[DIREKTOR]>,
<context/employment contract> x <detect/[MANAGER]> x <?> ::
<output/[MENEDŽER]>,
<context/employment contract> x <detect/[MANAGER]> x <?> ::
<output/[MANADŽER]>,
<context/building management> x <detect/[MANAGER]> x <??> ::
<output/[UPRAVNIK]>,
<context/building management> x <detect/[MANAGER]> x <??> ::
<output/[UPRAVITELJ]>,
<context/education> x <detect/[MANAGER]> x <?> ::
<output/[RAVNATELJ]>,
<context/???> x <detect/[MANAGER]> x <?> ::
<output/[VODJA]>

In (8), we give a selection procedure (Yngve 1996:255-57) as a property of [law student]: [law student]<select translation for [MANAGER]>. A selection procedure consists of a series of setting procedures, separated by commas. The setting procedures have mutually-exclusive input conditions, and thus produce different outputs based on the input conditions. A double colon (**::**) separates the input conditions from the output. For example, the first setting procedure in <select translation for [MANAGER]> consists of (9).

(9) <context/employment contract> x <detect/[MANAGER]> x <?> ::
<output/[DIREKTOR]>.

Three input conditions are specified: (a) that the textual context be an employment contract (<context/employment contract>), (b) that the translator has detected the channel part [MANAGER] in an input channel (<detect/[MANAGER]>), and ? (<?>). These are connected by Boolean AND, represented by “x”; all three conditions must be true in order for the output to be set to true. Thus, if these three conditions are met, the translator outputs the channel part [DIREKTOR]. We represent how he does this with the task procedure <output/[DIREKTOR]>. See Yngve (1996) for more about tasks (esp. 186-88) and task procedures (esp. 264-65).

Each setting procedure in the selection procedure [law student]<select translation for [MANAGER]> works more or less in the same way, but specifies different input conditions and different outputs.

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6. CONCLUSION. The task of translation is a complex one, particularly so because it deals with the ever intangible cognitive processes, relevant procedures which take place in human minds. The HSL model offers possibilities for representing the complexities of simultaneous tasks executing during the process of translation by modeling the different tasks of the translation process in separate linkages, by modeling the different simultaneous roles of the translator in various simultaneous linkages and offering the possibilities of managing time in terms of simultaneity and alternating of linkages.

The insight into the importance of managing previous experiences of the people involved and their relevant expectation procedures triggered in the process of translation also opens a new chapter in understanding and explaining the process of translating between different languages and cultures as well as accounting for the translation errors. The latter are not always as straight forward as they may seem, since there are numerous factors at play, such as the socio-cultural context, the socio-political situation, the specific wishes of the commissioner, or even the reputation of the translator, which may or may not deem a translation solution erroneous.

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WHAT CAN COGNITIVE TRANSLATION TELL US ABOUT THE RELATIONSHIP BETWEEN LANGUAGE AND THOUGHT

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Abstract. New cognitive models of translation are the result of a departure from the treatment of translation studies as mere comparisons of target and source texts. However, there is no consensus in the literature on what the cognitive approach to translation is. There are at least three understandings of this term: approaches that are based on cognitive linguistics, ones that use new research methods to investigate the translation process, and ones that use a psycholinguistic perspective. It is proposed that combining all these approaches into one interdisciplinary methodology may be the most appropriate (if not the only) instrument to investigate how meaning is created and then verbalized in the process of translation. The application of this approach is illustrated with translation problems based on differences between English and Polish.

Keywords: Translation, Translation Problems, Translation Models, Cognitive Linguistics, Gender, Polish, English

Languages: Polish, English

DESPITE THE EXTENSIVE LITERATURE AND research on translation or translation theory, not much is really known about what happens in the translator's mind. The cognitive approaches to translation, however, appear to concentrate on the process, not the product. It appears that applying a cognitive approach is crucial to the answers of some basic, but at the same time, most important, questions about translation.

The present article aims at defining a cognitive approach to translation as well as presenting its potential applications. In the first section, the traditional approach to translation is briefly described. Next, different understandings of the word *cognitive* as used in reference to translation are presented. Elements of existing approaches are incorporated into a new interdisciplinary approach. In the last part of the paper possible experiments applying this approach are presented.

1. THE TRADITIONAL APPROACH TO TRANSLATION.[1] In order to discuss translation from a cognitive point of view, we first need to discuss translation in its traditional understanding. The oversimplified summary of traditional translation theory is that translation involves producing a target text (henceforth TT) on the basis of a source text (henceforth ST). When one reads what is considered a classic translation theory, it becomes clear that often the whole approach was constructed around one particular type of text (e.g. poetry) or even one text (e.g. the Bible).

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[1] What is meant by translation here is any act of rendering ST from one language into another (whether oral or written). Despite the claim that oral and written translation may involve different cognitive processes (De Groot 1997, 2000), I will not distinguish between (oral) interpreting and (written) translation in this general discussion.

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The key word in these theories is equivalence. The debates, since at least Cicero's time, seem to revolve around the dilemma of literal versus faithful or free rendition. Even if the purpose (*skopos*) of translation was taken into consideration (cf. Vermeer's *skopos* theory, which says that the strategies used to produce the Target Text are determined not by the Source Text, but by the aim of translation) or the relevance of translation was the centre of attention (cf. Gutt 2000), everything concentrated on the comparison of two texts or their functions in two languages and cultures (cf. House 2001).

The existing theories offer a number of ways of dealing with problematic items, usually words or (idiomatic) phrases. What is common to all these approaches is that they investigate the products, not the process of translation. As for the role of the translator, he or she is supposed to find the perfect (whatever this perfect means) equivalent for the source text item. It means that he or she "understands the work in its complexity and [that he or she] approves of all the emotional and philosophical content included in a text" (Krzeczkowski 1975:143). As Shortliffe (1969:23) claimed, "the ideal translator would need to be not only cultural historian, literary critic, philologist, phonetician, semanticist, structural linguist, but also sociologist, anthropologist, psychologist and psychoanalyst." As mentioned before, the function of the TT was investigated while what happened during the task of translation was not considered in the theories.

Obviously, it would be an exaggeration to say that theoreticians completely ignored the process of translation. Even in the early approaches one may find direct references to what happens during the production of the TT. To give just one classic example, Levy (1969) sees translation as a process composed of consecutive moves. He even uses decision trees to illustrate the process of translation as a sequence of different moves and choices.

Moreover, traditional theoreticians, being translators themselves, acknowledged that translation was not a simple input-output procedure and that it required decision-making. However, what was the centre of attention in the translation studies literature was the text that was produced and its relation to the meaning, form or function of the original, not the process *per se*.

2. COGNITIVE APPROACHES TO TRANSLATION. As mentioned above, a cognitive approach to translation promises to offer more insights into the process or processes involved in the rendition of the ST. However, there is no consensus in the literature on what the cognitive approach to translation implies. In Baker & Saldanha (2009:242), the term cognitive approach is used as synonymous with the psycholinguistic approach. It concentrates on cognitive processes that take place during translation with the assumption that the "translation process … inevitably replicates all the characteristics of a general model of human communication" (244). A closer search of the literature reveals at least two more interpretations apart from the psycholinguistic one. In some sources, cognitive translation constitutes a combination of translation theory and cognitive linguistics (e.g. Tabakowska 1993). Cognitive linguistics rede-

fines what meaning is and this allows one to redefine the notion of equivalency. In the cognitive translation type of approach, cognitive processes taking place during translation are investigated using new research methods (e.g. EEG or eye-trackers), traditionally associated with other scientific disciplines, such as neurolinguistics or psychology. Not only is this a new application for already known research methods, but also there are new techniques that are designed especially to investigate the translation process. In order to understand the process of written translation, screen-loggers and key-loggers are used to keep a record of the sequence of moves the translator makes in the process of rendering the ST. Key-trackers make it possible to analyse exactly how the TT was produced, while a screen-logger shows what translation aids (such as on-line dictionaries or the Internet) were used and when by storing a series of screenshots. All things considered, it has to be mentioned that the three cognitive approaches described above are not entirely separate or mutually exclusive. However, each brings something new or offers a slightly different perspective on the process of ST rendition.

In the rest of section 2 of the paper, these three approaches are briefly summarized to give a better picture of how they differ. Moreover, at the end of each section the usefulness of each approach in the understanding of the translation process is discussed.

2.1. THE COGNITIVE PERSPECTIVE. The first approach treats the cognitive and psycholinguistic views as synonymous. As mentioned above, this approach assumes that a model of translation should be based on the current knowledge about human language processing and it should take "monolingual communication as a starting point while recognizing that translation and interpreting are special instances of bilingual communication" (Baker & Saladanha 2009: 242).

The translation process was investigated from this point of view by, among others, DeGroot (1997). This investigation resulted in the construction of a model of translation that recognized two interpreting strategies used in analysing the rendition of a text: the first was meaning based, and the second was described as transcoding. Alternatively, they are referred to as vertical and horizontal translation, respectively (DeGroot 1997, 2000).

In the meaning based (vertical) translation, the translator has to fully understand the ST in order to render it. The search for equivalents occurs at the level of conceptualizations, not words. On the other hand, in transcoding (also known as word-based or the word-for-word technique), "the interpreter supposedly translates the smallest possible meaningful units of the source language that have an equivalent in the target language" (Christoffels & DeGroot 2005:459). This model includes also the proposal made by Paradis (1994), who suggests that translation takes place at different linguistic levels (phonology, morphology, syntax and semantics) and that units from these separate levels may be translated independently. Contrary to the vertical translation technique, this strategy does not assume full comprehension of the ST.

These two processes – horizontal and vertical translation – are not mutually exclusive, and they often take place at the same time. This may, in fact, be the biggest criticism of this approach. On the one hand, the model tries to help us understand and isolate the sub-processes involved in the translation process. On the other hand, it seems impossible to distinguish between the two techniques in practice and it is difficult to investigate applications and possible advantages of each strategy. Because of these issues, the usefulness of this approach in the understanding of the translation process is limited.

To conclude, the basic assumption that translation constitutes a bilingual task of a bilingual brain constitutes a good starting point in gaining understanding of what happens during translation. It would seem to be common sense that all translation research should be based on what is already known about the operation of a bilingual brain. However, applying this approach exclusively seems to be insufficient, as it concentrates on the insights offered by psycholinguistics while ignoring the knowledge about equivalency offered by translation studies.

2.2. Cognitive linguistics and translation theory. The second understanding of the concept of cognitive translation is based on the principles of cognitive linguistics (henceforth CL).

Langacker's (2008) division of semantics into two types – the dictionary view of linguistic semantics and the encyclopaedic view – is useful for re-defining the notion of equivalency. In the dictionary view, meaning can be represented as a small box in the circle representing the total knowledge about a particular item. In encyclopaedic semantics, the circle of knowledge is full of overlapping circles and "in this approach, a lexical meaning resides in a particular way of accessing an open-ended body of knowledge pertaining to a certain type of entity" (Langacker 2008:39). The more central the circle, the more prototypical a specification it represents.

Equivalency, in the CL approach to translation, implies that two conceptualizations in two different languages are comparable. CL "rejects the existence of a clear demarcation line dividing semantics from pragmatics (Tabakowska 1993:15). Moreover, the text is no longer seen as being related to some given "system," but rather it is seen in the context of other texts. It is not the dictionary, but the encyclopaedic semantics that is useful in the process of translation. Equivalents found by the translator are said to be based on experience and conceptualization, not just on dictionary meanings. Finally, the search for equivalents involves a comparison of the linguistic resources of the TT and ST. What is also important in this approach is that every translation is recognized as a complex process in which the presence of the translator is overtly acknowledged.

This approach constitutes a slight shift from the traditional approach to translation, mainly in the understanding of the concept of equivalency. However, by applying the CL-based theory one still ends up with a comparison of two texts and an analysis of the linguistic resources available in both the SL and TL. As aptly observed by Tabakowska (1993:20), CL "offers a theoretical framework for a more adequate definition

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of translation equivalence, and thus makes it possible to formulate some normative principles for translation assessment." It also allows us to "distinguish between untranslatability and mistranslation" (Tabakowska 2000:95), but, in the end, it does not add anything substantially new to the understanding of the translation process.

2.3. THE EXPERIMENTAL RESEARCH PERSPECTIVE. This understanding of the cognitive approach to translation is focused on the investigation of the process of translation with the help of new technologies such as eye-trackers, keyboard logging, or EEG). Before these new research techniques became available, the only way of investigating the process of translation was think-aloud protocols (TAPs), and these methods have proven to be faulty. The development of new research possibilities allows one to look at the process more closely and in ways that were not possible before. However, the literature is still limited (cf. Shreve & Angelone 2010), because translation was usually studied as a means of gaining an understanding of bilingualism and, so far, the translation process itself has not been the centre of attention. This approach seems to offer the best tools to gain insights into what happens in the brain of a bilingual person during the process of translation.

2.4. A COMBINATION COGNITIVE APPROACH TO TRANSLATION. It seems that none of these three approaches by itself can answer basic questions about the translation process. Nevertheless, I believe that by combining these approaches we could gain some real cognitive insights. In section 3, I present a number of potential translation problems and suggest some possible applications of the combined cognitive approach to translation through experiments that will show how these questions can be addressed.

3.0. APPLICATION OF THE COMBINATION COGNITIVE APPROACH TO TRANSLATION.

3.1. GENDER. A very interesting question of equivalency is posed by the problem of gender differences between languages. Let us consider the concept of *death* (cf. Stroińska 2007). From the point of view of the traditional approach to translation, the concept is not particularly problematic. It is among the most basic and universally recognized concepts and all of the languages under consideration have a dictionary equivalent of the word. However, if we put this concept in context, the rendition becomes more complicated.

In Terry Pratchett's *Reaper Man*, the protagonist is Death. At the beginning of the story:

> "Death put down the timer, and then picked it up again. The sands of time were already pouring through. He turned it over experimentally, just in case. The sand went on pouring, only now it was going upwards. He hadn't really expected anything else." (Pratchett 1991:10)

The problem arises when Death, who has chosen the name Bill Door, has to be referred to as feminine in Polish or Russian. In the existing translations of Pratchett's novel, translators decided to use a masculine verb following the semantic rather than the morphological agreement pattern. This means that a male referent of a morphologically feminine noun triggers a masculine verb form:

Śmierć odstawił … (‘Death$_{\text{FEM}}$ put down$_{\text{[MASC]}}$’),
Śmierć nie oczekiwał … (‘Death$_{\text{FEM}}$ did not expect$_{\text{[MASC]}}$’).

In the published Polish translations of *Reaper Man*, the meaning of the original seems to be preserved; what is lost is the natural flow of the text. *Śmierć* sounds like a proper noun here, not a common noun. One way to deal with the gender problem would be to use a related concept from the network of conceptualizations – e.g. *Szkielet* ‘skeleton’ or even *Kosiarz* ‘reaper man’, capitalized in order to signal that they function here as the character’s name. It would be in agreement with the plot of the book and it would read well. However, the meaning of the name and the cultural associations it triggers would have been narrowed down.

When one thinks about a CL approach to translation, the tools that are proposed there may help to gain some understanding of the translator’s decision. First of all, the resources in both source language (SL) and target language (TL) may be compared. This analysis shows that both Polish and English have at their disposal three grammatical genders (feminine, masculine and neuter). In Polish, gender agreement is represented by different suffixes added to nouns, adjectives, pronouns, and some verb forms, while in English only pronouns are marked for gender, normally reflecting the biological gender of their referents. From this point of view, translation should be easy as both languages have the instruments needed. Secondly, conceptualization as a way of finding equivalents and putting the problematic concept into the network may be useful when the translator considers the alternatives. Finally, in the light of the CL alternative, translations may be assessed.

In addition, the experimental method could offer further insights into the process of translation. How does the brain react to the difference in gender? Are sentences (1), (2) and (3) processed differently in English?

(1) Death put down the timer. He turned it over experimentally, just in case.

(2) Death put down the timer. She turned it over experimentally, just in case.

(3) Death put down the timer. It turned it over experimentally, just in case.

Eye-tracker may be used to gain understanding in how the reading process of the source text occurs. What are the tokens that the translator spends more time staring at? Is (2) more problematic for the translator than (1)? Taking into account gaze behavior, does the translator spend relatively more time on the gender-problematic item? What translation decisions do translators make? Do they decide to translate *death* as *śmierć* and then use incorrect gender agreement?

It has to be noted that two of the English examples, (1) and (3), seem to be considered correct by English native speakers. Sentence (2) sounds odd in English, as death is not conceptualized as a woman, but it is still grammatically acceptable. The next step would be to ask how native speakers react to the Polish translations of the sentences (1)-(3). Consider sentences (4)-(6):

(4) Śmierć odłożył klepsydrę. Odwrócił ją na próbę, na wszelki wypadek.

(5) Śmierć odłożyła klepsydrę. Odwróciła ją na próbę, na wszelki wypadek.

(6) Śmierć odłożyło klepsydrę. Odwróciło ją na próbę, na wszelki wypadek.

Based on gender agreement, both sentences (4) and (6) should be treated as unacceptable because the feminine noun *śmierć* must be followed by a feminine marking on the verb in the past tense. But is this confirmed by the reaction of the brain? It may be assumed that (6) will be rejected because death is here conceptualized as a person performing actions that only human beings are capable of doing and neuter gender does not agree with this mental image. An EEG may show how the Polish native speaker unconsciously reacts to these sentences and what is considered a violation.

As presented above, a combination approach to translation could answer some crucial questions about how the translation process occurs when it comes to differences in gender and conceptualizations in two languages. Eye-trackers may be found especially useful in determining tokens in the text that are problematic, thus offering particularly valuable insights to how the text is being processed. When written translation is investigated, key-logging and screen logging may show how the TT is being produced. These findings may be complemented with an EEG study that will show how strongly the concepts are conceptualized in a gender specific form. EEG may also help to assess the correctness of the translator's decisions as assesses by native speakers of the language.

3.2. ARTICLES. Another problem that is based on differences in linguistic resources available in languages is that of articles. The English-Polish translation of articles was analysed by Tabakowska (1993) using the CL approach. Using the example of Tolkien's poem *The Mewlips*, Tabakowska shows that the shift of perspectives achieved by the use of appropriate articles cannot be fully rendered in Polish, as it is a language that has no articles. Thus article translation "presents an instance of genuine linguistic untranslatability" (Tabakowska 1993:82). Some languages that lack articles, e.g., Russian or Turkish, have other ways to express the (in)definiteness of a concept,[2] however, what is important for this discussion is the fact that Polish lacks a lexeme to provide an easy distinction between indefiniteness and definiteness. It may be assumed that professional translators, due to time constraints, usually do not spend much time on one sentence, and consequently, it may seem that they ignore the subtleties of meaning with respect to the articles.

By applying the combination cognitive approach to translation, it would be possible to investigate whether articles really constitute a translation obstacle that is recognized right away by the translator. Eye-tracking methods in particular may show the differences in the processing of sentences when they are arranged into minimal pairs similar to (7) and (8).

(7) John is Elvis in this film.

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[2] I would like to express my thanks to the anonymous reviewer of my paper for pointing this out and for many other valuable comments.

(8) John is an Elvis in this film.

It may be expected that the translator will spend more time on the article in (8).

Do translators see that there is a difference in meaning, with (7) saying that John is portraying "Elvis" in the film and (8) pointing out that John is portraying one of the Elvis impersonators in the film? Do they spend more time on (8) in general? Would there be a difference depending on whether the sentences were translated into a language with articles (e.g. German) or one with no articles (e.g. Polish)? In addition to eye-trackers, the use of key-loggers and screen-loggers would make it possible to analyse the process of producing the written translation.

4.0. WHAT CAN THE COGNITIVE APPROACH tell us about the relationship between language and thought? As shown above, none of the existing approaches to translation is very useful in understanding translation as a process. The proposed combination cognitive approach to translation can help us to understand how the bilingual brain works when performing a particular translation task. First of all, psycholinguistics may contribute important insights, since translation really is a bilingual task. Secondly, experimental methods allow us to determine what constitutes a problematic item in translation and how the text is processed. Finally, the cognitive linguistic understanding of equivalence makes the assessment of translation decisions more accurate. It is undeniable that more research is needed to provide an in-depth understanding of the translation process. However, as shown here, the interdisciplinary cognitive approach offers the best tools to conduct appropriate experiments and analyses leading to a more in-depth understanding.

Furthermore, this approach has other side benefits: a better understanding of the process of translation should help to improve translation training. It is crucial to define the problems in the process of translation. Moreover, if the results show that solving the problem once results in the creation of a pattern, drilling practices may be devised and will inevitably prove beneficial in training programmes. Additionally, once the cognitive aspects of the work of the human translator are better understood, the algorithms for machine translation may also be improved. Finally, the proposed research on the activities of a bilingual brain may be useful not only in the investigation of the translation process, but it may also offer insights into some properties of the architecture of natural languages. The method may be used to study how different language systems work in the minds of the speakers and how various subsystems of language, e.g. morphology and syntax, work together in order to disambiguate linguistic problems.

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HOW TO THINK ABOUT MEANING, AND ABOUT TRUTH

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Abstract. In reaction to the objectivist approach to truth, Saka proposes a subjectivist account which claims that truth and falsity are like sentences, statements, and beliefs themselves – products of agent subjects and ultimately grounded in some subject's beliefs. The position defended in this paper is that, while such an account is adequate for the analysis of meaning, it poses problems for the understanding of truth. Saka demonstrates that subjective attitude-conditions can handle types of natural-language utterances which are unmanageable for a truth-conditional theory (e.g. puns, paradoxes). It is argued here that truth-conditional semantics represents the wrong kind of objectivity, in that it reifies both the utterance and its meaning; attitude-conditional semantics rightly re-introduces the speaker and the thought-content of the utterance into the discussion. This provides an adequate approach to linguistic meaning, which is concerned with the immediate cause of the speaker's use of certain linguistic signs, this cause being the speaker's view of the situation. However, by completely subjectifying meaning, it severs the relation between mind and reality. This paper utilizes the concept of intersubjectivity proposed by Artigas as the basis of the human ability to communicate by means of language, i.e. our ability to know reality in the same way as other human beings do, which explains the convergence of individual subjectivities observed in human communication. It is concluded that since both meaning and truth are intersubjective, they are reflections of a convergence between subject and object.

Keywords: Truth, Meaning, Objectivity, Truth-conditional Semantics, Logic, Semantics

Languages: (none)

The idea for this paper came from a comment by Paul Saka on a paper dealing with reductionism in linguistics, in which I criticized generative grammar's treatment of semantics for dealing with sentences as having meaning defined in terms of truth-values independently of any context of utterance (Duffley 2009). In that paper I allowed for some exceptions to the rule that most natural-language sentences cannot be determined to be true or false without taking into account the situation in which they are uttered and the intention of the speaker who produced them, giving as an example statements of the type illustrated by (1).

(1) Water is composed of hydrogen and oxygen.

Paul Saka pointed out that even a sentence such as this could be used to assert a number of different things: the predicate could be intended to convey either the idea of 'consisting strictly of hydrogen and oxygen' or that of 'consisting of hydrogen and oxygen among other things'; the subject could be used to refer either to tap water or to the pure chemical compound H_2O. In the case where the subject referred to tap

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water and the predicate denoted strict composition, (1) above would be false, as the liquid we drink from our taps includes, along with hydrogen and oxygen chlorine, fluoride, microbial matter, and many other things we are perhaps better off not being aware of.

And these interpretations are only some of the possibilities. If contrastive stress is taken into account, the messages conveyed by the sequence of words in (1) above could range through the following:

(2) a. Water has this composition, but hydrochloric acid does not.
b. Although you seem to have forgotten this basic fact, it is still the case nonetheless.
c. Water is not simply a mixture of hydrogen and oxygen.
d. Water is not composed of nitrogen and oxygen.
e. Water is not composed only of hydrogen.
f. Water is not composed of hydrogen and helium.

Whether (2a) is true would depend not only on the truth of (1), but also on whether whatever the speaker is contrasting water with is not composed of hydrogen and oxygen. (2b) implies some prior doubt, memory loss or assertion of the contrary of (1). (2c-f) are similar to (2b) in implying denial of some prior or implicit assertion which is in opposition to (1).

Such uses illustrate the fundamental unsoundness of the type of objectivity exemplified by truth-conditional semantics, which treats sentences as abstract objects whose meaning can be defined by means of truth-conditions, a position which assumes that “the analysis of truth need not make essential and explicit reference to some subject who thinks about truth” (Saka 2007:236). Saka pleads in favour of “explicitly incorporating into our analysis of language the subjects who speak, hear, and otherwise use it” (Saka 2007:5). Since a sentence does not exist in the abstract, but is always the product of a specific act of language carried out by a specific speaker at a particular time, it would seem reasonable to at least investigate whether the situation of utterance and the speaker’s intentions have some impact on the message conveyed.

Not only does truth-conditional semantics objectify sentences, it also objectifies sentence meaning. By defining the latter in terms of truth-conditions, it identifies meaning with the way the world must be in order for the sentence to be true of it. As I pointed out in my 2009 paper, this has the unfortunate consequence of making the meaning of even the simplest sentence into an infinite set of situations, as any sentence can correspond to an endless multitude of slightly different scenarios. The introduction of possible worlds is meant to capture this diversity, but it merely displaces the problem into the realm of possibilities, which are also infinite.

In reaction to the objectivist approach to meaning and truth, Saka (2007:252) proposes a subjectivist account:

> The objectivist conception claims that every proposition is either true or false (or neither) regardless of what anyone thinks about it, and that we possess the

> power to speak of such truth-values even if we can't always ascertain them. The subjectivist in contrast claims that truth and falsity, as predicates of sentences, statements and beliefs, are just like sentences, statements, and beliefs themselves: they are products of agent subjects and hence are ultimately grounded in some subject's beliefs.

The position which I will defend here is that while such an account is adequate for the analysis of linguistic meaning, it poses serious problems for the understanding of truth.

Regarding meaning, the job of the linguistic semanticist is to explain why the speaker chose certain linguistic signs in a given utterance and not others. It seems obvious that the answer to this question is that the linguistic forms chosen signify the way the speaker has thought the content of the message that he wishes to convey. Whether the way he sees things is the way they really are is irrelevant to the task of explaining why he talked about them the way that he did. Of course, things are a bit more complex than that. In some cases a word may be chosen not only for its meaning but also for the way it sounds (cf. the expression *as snug as a bug in a rug*). More importantly, the speaker knows he can count on the hearer to draw inferences from what he says, and so does not have to express all aspects of the intended message explicitly. Pragmatic strategies can usually be identified, however, by comparison with other occurrences of a sequence in which such inferences are not present.

Thus the proposal to explicate meaning in terms of attitude-conditions rather than truth-conditions seems promising. Attitude-conditions are "those conditions under which an expression is entertained or otherwise held under some propositional attitude" (Saka 2007:5), and introducing them allows the replacement of the truth-conditional schema in (3) by the attitude-schema in (4):

(3) _ is true = P_

(4) S thinks_ = S thinks that P_

Saka shows that attitude-conditions can handle types of natural-languages utterances which are unmanageable for a truth-conditional theory (e.g. utterances containing connotative expressions, puns, paradoxes, etc.).

Although attitude-conditions are better than truth-conditions, they still treat meaning only on the level of the utterance. This, however, is not the level at which there is a stable correlation between sign and meaning, and so attitude-conditions cannot be taken to be properties of sentences *per se* but may involve situational factors pertaining to the particular circumstances in which an utterance is made. For example, the use of (5) below when speaking to a friend would not correspond to the same attitude as that expressed if addressing a stranger:

(5) You dirty S.O.B.!

This is perhaps not a major drawback in a theory that refuses to objectify the sentence but sees it as an utterance produced by a real live speaker. However, it points to the need to seek a level where there is a stable sign-meaning correlation. The existence of such a level can be inferred to be necessary given the fact that the linguistic sign functions as an instrument of communication.

Reference to the speaker's thought and attitude thus acts as a healthy although imperfect antidote to the overly idealistic conception of meaning and truth which wrongly objectifies both the sentence (which is detached completely from its utterer) and its meaning (treated as a set of real- or possible-world scenarios). By treating linguistic meaning as a thought conceived by the speaker and reflecting his attitude, it rightly re-attaches the sentence to the speaker and its meaning to the latter's mind. On the down-side, however, this approach runs the risk of making truth something completely subjective. If one adopts the classical definition of truth based on the common-sense notion of correspondence between mind and reality, truth has both a subjective and an objective dimension. It is determined both by reality and, as attitude-conditional semantics rightly brings out, by the thought-content applied to reality by the speaker. Consequently, truth cannot be reduced to a mere state of mind: it concerns the relation between a state of mind and some reality not created by the mind.

What is more, some assertions seem to be intended by their utterer to be non-reflective of the latter's subjectivity. For example, (6) below is meant to correspond to any being inasmuch as it is a being:

(6) A thing cannot both be and not be at the same time and in the same respect.

In this regard, Thomas Nagel (1989:70) speaks of the human capacity to think of an object from the vantage-point of "a view from nowhere," i.e., a conception which is valid for any one at any time or any place. One might argue that a statement like (6), which adopts this sort of stance with respect to reality, still reflects a particular point of view — that of metaphysics. But somehow it seems paradoxical to label such a view 'subjective'. Moreover, the awareness that the way a thing is is not dependent on the way we perceive it also leads scientists to seek to eliminate or diminish subjectivity.

This suggests that there is also a legitimate brand of objectivity. Although one cannot treat a sentence as an abstract object with an abstract meaning but must remember that it is the product of an act performed by a particular speaker with a particular communicative purpose, there are statements which are intended by the speaker to be detachable from his limited, subjective point of view. While the speaker can never see reality from any other perspective than that of a human being, he can abstract away from his individual point of view and seek universal human knowledge. Once again, one could object that this is still a particular point of view on reality, but it is particular only in the sense of being distinct from other possible viewpoints, not in that of corresponding only to a particular individual, as it is aimed at reflecting the properties of the object and not of the individual perceiver.

A fundamental question arises at this point: is this type of objectivity merely an illusion too? It would be if each individual perceived the same object in a totally different way. However the fact that we are able to communicate by means of

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language shows that this is not the case. Although communication does not require that utterances be autonomous objects with autonomous meanings, it does require intersubjectivity, both on the level of the mental content attached to the linguistic signs and on that of the ability to draw the same inferences from what is said. This intersubjectivity points to an ability to know reality in the same way as other human beings do, as there is no way to explain the convergence of individual subjectivities otherwise: it would have to be a random phenomenon, a highly improbable chance occurrence — a situation which would render human communication by means of language impossible, whereas we have daily experience of communication as a normal, regularly occurring event.

Saka, on the other hand, proposes that scientific realism is simply the assertion of truth-conditional semantics within a particularly interesting domain, and that "it is rational to retain our beliefs even if they are not justified by any correspondence relation [to reality]" (2007:102). This position is destructive of both science and rationality, however, as well as of itself, for it would imply that it is just as rational to subscribe to truth-conditional semantics as to attitude-conditional semantics, in spite of all the arguments marshaled by the author in favour of the latter. What is at stake here is the tension between subjectivity and objectivity, the relation between the mind and reality. I would like to propose that subjectivity and objectivity are in a correlative, gradient relationship. At one extreme, there are utterances such as expletives, whose main function is to express how the subject feels (but are not totally subjective in that their conventional character is based on the knowledge that other people can feel the same way as the speaker). At the other extreme are utterances such as philosophical or scientific statements, which attempt to abstract away from personal subjectivity and to reflect the way things are. The scientists or philosophers who make such statements remain human nonetheless, and so one must take into account their communicative intention in determining the truth or falsity of what they say. This involves taking into consideration the way the terms they use are defined within the theory to which they subscribe, as well as what these terms are intended to describe or explain. As Artigas (2000:203) puts it regarding science,

> … scientific truth combines contextual, semantic, and pragmatic features, which correspond to the theories of truth as coherence, as correspondence, and as praxis. We will meet unsolvable problems if we separate these features. Such problems arise, for example, if we try to establish truth as a correspondence conceived as completely independent of theoretical construction and pragmatic intervention. An interpretation of this kind would amount to illegitimately making scientific truth absolute because the value of our knowledge would be considered as though independent of our concepts, their references, and the real problems we try to solve with them.

The perfectibility of scientific truth is a reflection of the limitations of the knowing subject. However, this does not make such truth purely subjective: just because the human mind is not omniscient does not mean it is incapable of grasping reality and can only express its own attitudes or feelings.

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To conclude, one could say that while truth is dependent on meaning, it is also dependent on objective reality. Whether a statement is true or not depends both on what thought-content it has (including what the speaker intends his thought-content to apply to and what he wishes the hearer to infer from what he says) and on the object that this thought-content is applied to. One cannot therefore evaluate the truth of a statement without taking into account the speaker's intentions and the situation of utterance, although some statements are made with the intention of reducing speaker subjectivity as much as possible. Truth-conditional semantics consequently represents the wrong kind of objectivity, in that it reifies both the utterance and its meaning. Attitude-conditional semantics rightly re-introduces the speaker and the thought-content of the utterance into the discussion of meaning and truth. This provides an adequate approach to linguistic meaning, which is concerned with the immediate cause of the speaker's use of certain linguistic signs to express a message. However, by completely subjectifying meaning, it severs the relation between mind and reality, which renders meaningless the question of truth.

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Metatheory

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VASTNESS REVISITED

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Abstract. In 1984 Terrence Langendoen and Paul Postal argued that the output of natural grammars, that is natural languages, had a degree of infinity that was larger than that of any set in mathematics. While their work seemed arcane and has not been widely taken up since, they did address a fundamental question that lies at the formal heart of generative grammar: what size of set does a grammar generate, or, how big is language?

Three years later McCawley criticized their work on the grounds that an infinitely long sentence was ungrammatical, his objection being a linguistic version of what in logic is termed the halting problem for a Turing machine. Langendoen and Postal could bypass McCawley's criticism by taking refuge in the distinction between a potential and an actual infinite. The nature of generative grammar would remain the same in either case.

In fact there is a hitherto unrecognized flaw in Langendoen and Postal's work that arises when they filter the output of their machine (a power set operation) that makes bigger sets from smaller ones. The resulting filtered set reverts back to a size, or cardinality, that is the same as the original set of infinitely long sentences, this cardinality being what in math is called denumerable, or in set theory aleph-null. Their effort to advance language to unbounded infinite heights stalls at the lowest level of infinity, aleph-null. Their hierarchy cannot be realized.

A simple and natural model of language use is put forward here: language is used in context to produce acceptable or unacceptable instances of a utterance – context pair. The context model is an extensional one that uses space-time as a natural base for an abstract space of speech. It can then be shown that the human ability to use language uses a generative capacity whose output is greater than aleph-null, that is, its cardinality is at least as large as that of the continuum (aleph-1) and probably that of all relationships on the continuum (aleph-2).

These findings form a natural generalization and extension of the Chomsky hierarchy to super-grammars. They also complete Chomsky's initial demands for generative grammar: an explanation not only for the infinite use of language, but also its spontaneous and creative use, the last two of which have to date only been partially met.

Keywords: vastness, recursion, generative paradigm, Chomsky hierarchy, performance, set theory, Turing test, Turing machines, degrees of infinity, super grammars.

Languages: (none)

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The formal structure of generative grammar may be represented simply as in (1):

(1) $G(U)\ \gamma\rightarrow \{S\}\ \mathrm{XOR}\ \{{*S}\}$

> where G is the grammar that partitions, $\gamma\rightarrow$, or "generates," a set of utterances, U, into either acceptable sentences, $\{S\}$, or unacceptable ones, $\{{*S}\}$, by assigning derivations, Δ, and semantic readings, ρ, to members of the acceptable set, and XOR is boolean exclusive 'or.'

Some linguists may desire a system with degrees of grammaticality, thus complicating the picture in (1), but this demand could be accommodated as in (2a), where G assigns utterances to a graded series of sets, $\{S_n\}$, with a threshold of acceptability reached at some value of the index, let us say, k. This threshold can be used to partition the outcome again into two sets (of sets) (2b), duplicating the condition in (1).

(2) a. $G\ \gamma\rightarrow \{S_n\}$

b. $G\ \gamma\rightarrow \{S\}\ \mathrm{XOR}\ \{{*S}\}$

> where $\{S\}\supset\{S_i\}$, $1\le i\le k$, up to S_k acceptable, and $\{{*S}\}\supset\{S_j\}$, $k+1\le j\le n$ unacceptable; $\supset$ denotes 'contains as a subset.'

Crucially, **G** is finite, while both {**S**} and {***S**} are infinite. This is Chomsky's criterion for generative grammar, making infinite use of finite means (Chomsky 2006, 1975). Further, Chomsky sought to capture through this generative paradigm the infinite, spontaneous, and creative use of language. Iteration is assumed to explain the infinite nature of language, (the size of {**S**} in a sense that I shall make exact). I shall conclude by arguing otherwise, though I admit iteration and the denumerable nature of sentence structure. Iteration is not why language feels infinite. Nor does iteration or the formal schema in (1) in any way explain the spontaneous or creative use of language. One must seek the infinite feel of language in its use in context, that is in the performance of language, and it is there that spontaneity and creativity emerge.

1. Cardinality. Langendoen and Postal (1984) took up this fundamental feature of generative grammar as depicted in (1), and by doing so created a new field of linguistics, vastness theory. They generated a set of sentences, $\mathbf{S_0}$, with cardinality $\aleph_0$, (aleph-null, or aleph zero), the cardinality or size of the integers, these constituting a denumerably infinite set. They achieved this through the iteration of embeddings. To capture their effort symbolically, as in (3), let **E**, an embedding operator, act on a finite sentence, $\boldsymbol{\sigma}$, of length **k**, such that with $\mathbf{E}^{\mathbf{n}}(\boldsymbol{\sigma}) = \boldsymbol{\Sigma}^{\mathbf{n}}$, $\boldsymbol{\sigma}$ embedded n-times. They then take the limit as $\mathbf{n}\rightarrow\infty$. Then their findings can be represented as in (3).

(3) a. $E^n(\sigma) = E(E(E\ldots(\sigma))\ldots) = \Sigma, \Sigma$ "n times"

b. $\#(\mathbf{S_0}) = \#(\lim_{n\rightarrow\infty}E^n(\sigma)) = \#(Z) \times (n \times k) = \aleph_0 \times (n \times k) = \aleph_0$

c. $\#(\{\text{all of the words}\}) = \#(\lim_{n\rightarrow\infty}(n \times k) = \#(N) = \aleph_0$

> where #() is the cardinality function that counts the size of a set, $\aleph_0$ is the cardinality of a denumerable infinity, the size of the set of natural (counting) numbers, **N**.

One should note that $\aleph_0$ is a transfinite cardinal, in fact, it is the least such cardinal, the lowest transfinite number. Transfinite cardinals are a generalization of the concept of size (Cantor 1955). When multiplying with a transfinite cardinal, as in (3b),

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(or with a series of transfinite cardinals), the biggest one always prevails (Devlin 1979: 82-8; Enderton 1977: 138-44; Kamke 1950: 17-51).

The actual sentence which Langendoen & Postal (1984:56-7) used was that in (4), simple but adequate for their formal purposes.

(4) S_0 = "I know that I know that … Babar is happy."

The infinity is in the middle of the sentence, so to speak. Their sentence has a beginning and an end, but an infinite middle, much like an infinite series approaching a limit as well as being defined by or equated to that limit. This choice enabled them to avoid the criticism that they had created a sentence without an end, and therefore one that was nongrammatical, though in fact such a criticism was leveled against them. The sentence in (4) consists of discrete words assembled into discrete clauses, and as such each word can be assigned an integer, starting with 1 at the beginning. In this way the size of the sentence, strictly speaking its cardinality, is in one-to-one correspondence with the integers. Hence the sentence has cardinality $\boldsymbol{\aleph_0}$, which by definition is the same as that of the integers, $\mathbf{Z}$.

2. REMARKS ON CARDINALITY. To avoid controversy, $\mathbf{S_0}$ must be viewed as a feature of competence, subject to a performance truncation (which can be denoted by $\diamond$). In other words, one can never utter an infinite sentence, but it is in the nature of $\mathbf{S_0}$ that such a sentence could be assigned a derivation, that is, that it could be assigned to either $\{\mathbf{S}\}$ or $\{*\mathbf{S}\}$. One simply must stop because of performance constraints, that is, one must truncate one's sentence, $\diamond$.

This problem of truncation is not unique to language. The same must be the case with the infinitude of the transcendental numbers. For example, $\boldsymbol{\pi}$ (the ratio of a diameter of a circle to its circumference), or $\boldsymbol{e}$ (the base of the natural logarithms) can never be represented, but must be understood. The symbols, '$\boldsymbol{\pi}$,' '$\boldsymbol{e}$', etc., are in fact limits. Truncation looks simple enough, but it formalizes a solution to the long-standing problem of real as opposed to potential infinities.

James McCawley noted (1987) that infinitely long sentences could be argued to be inherently ungrammatical. McCawley may have had in mind the halting problem for a Turing machine, the latter usually symbolized as $\mathbf{M_T}$. In modern experience this would be equivalent to an application freezing up on a computer, even if a well-defined end or goal exists. Langendoen and Postal deal with sentences that are locally grammatical, that is, any given phrase taken within a finite sampling window will be grammatical. One can then form an infinite union of all such locally grammatical substrings to produce a globally grammatical string, (5), even if it is unacceptable in a McCawley-Turing sense, that is, $\mathbf{G}$ or $\mathbf{M_T}$ fail to halt. Truncation also answers the objections raised against the initial work of Langendoen and Postal (as in Abbott 1986; Lapointe 1984; Rauf 1984; Sgall 1984; Thompson 1984).

(5) a. $G \rightarrow \sigma, \sigma \ \varepsilon \ \{S\}$ (local grammaticality)
b. $\cup_i(\sigma_i) = S_0 \mid S_0 \ \varepsilon \ \{S\}, 1 \leq i \leq \aleph_0$ (global grammaticality)
where $\cup$ is union or "joining", | is 'such that', and ε is 'an element of set.'

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With truncation, however, we can admit Chomsky's recursion into the structure of grammatical competence without running afoul of either performance constraints or Turing's halting criterion.

3. ASIDE ON SET THEORY.[1] For what I wish to prove, the concept of a power set, (6), is crucial. This is the set of all sets that can be formed from the elements of a given set. Among these sets are the null set, **ø**, and the whole set itself. It is as though one were to take a bag of fruit and choose all possible combinations of the fruit therein, including no choice, the null set, or the entire bag itself. Every choice leaves behind a remainder, which itself is a possible choice, so the choices come in pairs. This pairing of choices explains the general result in (8).

(6) a. $A = \{a, b, c\}$
b. $\Pi(A) = \{ø, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{c, b\}, \{a, b, c\}\}$
where Π, the power set operator, generates the set of all subsets, making bigger sets from smaller ones.

The size of **A**, its cardinality, is merely the number of elements contained within it, as in (7). Similarly the cardinality of **A**'s power set can be determined by simple counting, though now we can relate the two sizes, as in (8).

(7) $\#(A) = 3$

(8) $\#(\Pi(A)) = 2^{\#(A)} = 2^3 = 8$

The relationship in (8) is can be generalized to all values of #(A).

Now, (8) may be extended to relationships such as (10), where we have assumed that the power set operator has once again faithfully created a set that is larger than its input.

(9) $\#(\text{natural numbers}) = \#(N) = \aleph_0$

(10) $\#(\Pi(N)) = \aleph_1 = 2^{\aleph_0}$

This is Georg Cantor's Continuum Hypothesis, usually abbreviated as CH, which is controversial (Cohen 1966). So, if one wishes, one may simply have (11).

(11) If $\#(A) = a$, and $\#(\Pi(A)) = b$, then $a < b$
(the power set is always bigger than its original set)

without committing to a hierarchy of alephs. In what follows I shall assume the CH. (The CH may be generalized. See (14) below.)

One may add a decimal (a set {.} of cardinality 1) to the natural numbers, **N**, (0, 1, 2, …). As with transfinite multiplication, the transfinite number prevails in addition (here denoted by +), so that $\boldsymbol{\aleph_0 + 1 = \aleph_0}$. One can then shuffle this new set of {**N** ∪ {**.**}} (a "shuffle product," see Eilenberg 1974:19). The result looks like the positive real numbers, $\mathbf{R}^+$, the numbers on the continuous line, such as 2.718281828… (***e***, the base of the natural logarithms), 3.141592653… (***π***), or 4.472135955… (the square root of 20). Cantor denoted the cardinality of the "reals" or of the continuum by $\boldsymbol{\aleph_1}$.

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[1] See Enderton 1977, Kamke 1950, Devlin 1993, Kunen 1980, Kanamori 2000

Many mathematicians find this seemingly sensible result controversial. Paul Cohen (1966) proved that the CH is independent of the other axioms of set theory, even though his famous forcing argument seems to assume the consequent. In other words, one can have set theory with or without the CH.

4. ASCENDING THE TRANS-FINITE LADDER.[2] Langendoen and Postal ambitiously argue that language climbs the transfinite ladder (Enderton 1977:9, Fig. 3). To do so, they form a power set of $\mathbf{S_0}$, $\mathbf{\Pi(S_0)}$. They then construct a new set, $\mathbf{S_1}$, putatively equinumerous (of the same cardinality) with $\mathbf{\Pi(S_0)}$. This new set consists of sentences from $\mathbf{\Pi(S_0)}$ rendered grammatical by means of conjunction, since the elements of $\mathbf{\Pi(S_0)}$, being scrambled from $\mathbf{S_0}$, are ungrammatical:

(12) $\Pi(S_0)$ = {[I know [that B…]], *[[that B is happy] I know [that B is happy]], …}

(13) S_1 = {[I know [that B…]], [[I know [that B…] and [I know [that I know [that B…]]]], …]B…]]]], …]

They assume the CH. (Once the CH is assumed, the generalized CH, or GCH, may be employed and the set theory will remain consistent.) They then assert that $\mathbf{S_1}$, as with $\mathbf{\Pi(S_0)}$, has the power of the continuum, $\aleph_1$. This is only their first step with the power set operator. They then form the power set of $\mathbf{S_1}$ and proceed ad infinitum. In this way they claim to ascend the transfinite ladder, by means of the generalized continuum hypothesis, as in (14).

(14) $\aleph_{n+1} = 2^{\aleph_n}$

They conclude that language has truly extraordinary cardinality, beyond the size of any set.

5. STUCK ON NULL, $\aleph_0$. $\mathbf{\Pi(S_0)}$ is not well ordered lexicographically (Kunen 1980: 173-75). To proceed up the transfinite hierarchy and retain grammaticality, Langendoen and Postal must clean up the output of their power set operation. $\mathbf{S_1}$ is supposed to salvage grammaticality from the chaos of $\mathbf{\Pi(S_0)}$, but their way of forming $\mathbf{S_1}$ from $\mathbf{\Pi(S_0)}$ can be shown to limit the cardinality of $\mathbf{S_1}$ to $\aleph_0$. Any further iteration in the manner they envisage fails to create sets of higher cardinalities because of the necessity of each time filtering out ungrammatical forms generated through $\mathbf{\Pi(S_n)}$. In effect their formation of $\mathbf{S_1}$ can be shown to be achieved through a denumerable application of conjunction, **&**, which may be viewed as an operator acting $\aleph_0$ times simply on $\mathbf{S_0}$, so that each element of $\mathbf{S_1}$ in (13) consists of a conjunction of finite sentences. The whole is therefore composed of an infinite conjunction of these elements. If one allows the conjoined sentences themselves to proceed toward an infinite limit, then at most one has:

(15) $\#(\&(S_0)) = \aleph_0 \times \aleph_0 = \aleph_0 = \#(S_0)$

No further ascent into the transfinite beyond is possible, since any power set must be filtered for grammaticality through the conjunction operator.

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[2] See Enderton 1977:7-9.

6. Super grammars (Turing test grammars). while the cardinality of the sets in (1) remains denumerable, this technicality does not directly shape our sense of language's infinitude (see the suggested extension in Uriagereka 2008). I take a different approach, one based on performance, and show that the sense of language's infinity is instead captured by appropriate use, that is by taking language in context, with no final use being self-evident.

I posit an event, **Ω**, consisting of two elements:

(16) $\Omega = (C, U)$, with C = context and U = utterance

Appropriate use means to parse the set $\{(\mathbf{C}, \mathbf{U})\}$ into acceptable $\{(\mathbf{C}, \mathbf{U})\}$ and unacceptable $\{*(\mathbf{C}, \mathbf{U})\}$ subsets by the generative effects of a super-grammar, Γ. Γ is equivalent to the Turing test for artificial intelligence, wherein one may speak to a machine without being able to distinguish it from a human. Hence I am tempted to use an alternate designation, "Turing Test Grammar." The process in (17) is superficially analogous to that in (1).

(17) $\Gamma(\Omega)\ \gamma\!\rightarrow \{(C, U)\}$ XOR $\{*(C, U)\}$

A determination of the cardinality of the sets in (17) will show that Γ is fundamentally different from G.

7. The cardinality of {(c, u)}. Generative capacity is a measure that depends both on the Kolmogorov complexity (Li and Vitányi 2008) of a grammar's output (complexity of the derivations or structures assigned) and upon the cardinality of that output. For shorthand I shall simply assign an extended cardinality to a grammar, (18) and (19), equal to that of its output(s), though strictly speaking it should represent the number of processes or rules and the size of the lexicon contained in a given **G** and accordingly be a finite, in fact, relatively small number. In (18) I take **G** to be $\mathbf{G_0}$, the most complex grammar of the Chomsky hierarchy, though each grammar of the hierarchy has the same cardinality.

(18) $\#(G_0) = \#(L_0) = \#(\{S\}) = \aleph_0$

For the super-grammar in (19), its extended cardinality is that of its super-language, **Λ** which is the product of the components of **Λ**, namely the context and the utterance.

(19) $\#(\Gamma(\Omega)) = \#(\Lambda) = \#(\{(C, U)\}) = \#(\{C\}) \times \#(\{U\})$

Whatever grammatical paradigm is used to model {U}, its cardinality is plainly that of L_0, as in (20).

(20) $\#(\{U\}) = \aleph_0$

Clearly the answer to (19) depends upon a reasonable model of context.

I will take $\{\mathbf{C}\}$ to be set of all contexts in life, which has the world as its stage. More specifically contexts take place in space-time, **Ξ**. In Figure 1, I depict the world lines, as four dimensional representations are called, of two people, let us call them Billy Bob and Peggy Sue, as they move through space and progress through time.

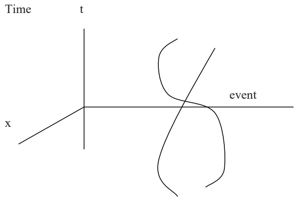

Figure 1: World-lines in Space-time, Ξ, (two people)

Such world lines, however, depict the mere physical aspects of Billy Bob and Peggy Sue. While contexts are certainly set in Ξ, they also are constructed from cultural perceptions and conceptions. Significant events or states are functions of these space-time contexts. I shall term a significant event or state a “history,” **H**. One might view a history, **H**, as a function of individuals, egos, in a context, **C**, as in (**21**).

(21) $H = f(\{ego\}, C)$

The cardinality of {ego} is finite, since there are only so many people in history.

World-lines are continuous, but the elements of **H** can be discontinuous. In fact histories begin, end, intersect, and avoid one another, all of which conditions can be highly significant for the parties concerned. In Figure 2 I have drawn (crudely) the legal context of Billy Bob and Peggy Sue’s marriage. The bottom bar represents the moment when Billy Bob and Peggy Sue are married in the company of family, followed by a brief honeymoon, (the unified stretch), and then by more normal, independent married life, all of which has legal significance. Their prior, independent lives are not relevant to legal considerations and therefore are not a part of the history depicted in Figure 2.

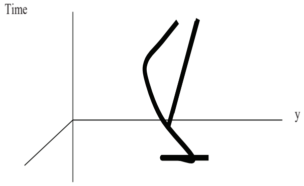

Figure 2: History in Space-time (the two are married)

The set of all histories, $\{\mathbf{H}\} = \mathcal{H}$, is made of subsets of Ξ, and combinations of subsets of Ξ. To achieve $\mathcal{H}$ one must take the power set of Ξ.

(22) $\mathcal{H} = \Pi(\Xi)$

It is important when forming a power set of a continuum that it be done so as to permit non-continuous or non-connected forms, otherwise a mere diffeomorphism (smooth distortion) results and the cardinality is not increased (as in Uriagereka 2008;

Postal 2004). (22) achieves this because of the conditions on histories. Technically, space-time Ξ serves as the base space for the fiber bundle of histories, $\mathcal{H}$, a separate cognitive space imposed upon space-time (Morita 2001:232; Frankel 1997:ch. 17). We may now calculate the cardinality of $\{\mathbf{C}\}$.

Assuming the GCH in (23) – (25), the cardinality of space-time Ξ is:

(23) $\#(\Xi) = \aleph_1$

That of all possible histories, (21), these being functions of individuals in contexts set within Ξ, is:

(24) $\#(\mathcal{H}) = \#(\Pi(\Xi)) = 2^{\aleph_1} = \aleph_2$

The result in (24) implies that the cardinality of $\mathbf{\Lambda}$, that is, of $\{(\mathbf{C}, \mathbf{U})\}$ is:

(25) a. $\#(\mathcal{H}) = \#(\{f(\{\text{ego}\}, C)\}) = \#(\{\text{ego}\}) \times \#(\{C\}) = \#(\{C\}) = \aleph_2$
b. $\#(\Lambda) = \#(\{(C, U)\}) = \#(\{C\}) \times \#(\{U\}) = \aleph_2 \times \aleph_0 = \aleph_2$

The result in (25) implies that our ability to use language spontaneously and creatively is beyond the power of any deterministic algorithm or a $\mathbf{G_0}$ ($\mathbf{M_T}$), since these produce only denumerable sets, $\aleph_0$.

Therefore the extended cardinality of $\mathbf{\Gamma}$ is $\aleph_2$. This is equivalent to the set of all possible functions and relations on the continuum. Such a system would seem spontaneous and creative, precisely because no deterministic grammar can achieve this level; nor can one achieve $\aleph_1$. An algorithm with a random application might achieve the power of the continuum in capacity if not execution, $\aleph_1$. One might now reasonably ask what conceivable sort of machinery lies within $\mathbf{\Gamma}$, that is, what can attain $\aleph_2$.

8. REPRESENTATIONS OF A SUPER GRAMMAR. a super grammar matches contexts with utterances, so one might treat these as an "inner product," written $<\ldots|\ldots>$, of infinitely dimensional vectors, that is as a Hilbert Space (Young 1988):

(26) $\Gamma(\Omega) = \{<C|U>\}$

One could then assign an acceptability measure to these inner products, with a threshold of acceptability, much as in (27):

(27) $\Gamma_{\mu}(\Omega) \rightarrow \mu(<C|U>)$, if $\mu < \Theta$, threshold ,then $(C, U) \in \{*(C, U)\}$

In other words if the usefulness of the utterance in a given context falls below a threshold of appropriateness, $\mathbf{\Theta}$, with $\mathbf{\Theta}$ being determined empirically, socially, or logically, then the utterance is not acceptable or the context has been misconstrued by the speaker.

Symmetries within $\{\mathbf{U}\}$, that is, grammatical constraints, and symmetries within $\{\mathbf{C}\}$, perceptual and cultural constraints, would then dictate the outcome of $\mathbf{\Gamma}$ under the acceptability measure. Such constraints have been the subject of generative grammar for several decades now, while similar perceptual and cultural constraints have been the object of study by cognitive scientists and some anthropologists. The effective study of super-grammars would require a new degree of collaboration among these three parties.

9. SPECULATIONS. Work by Gödel on the hierarchy of infinite languages (Kanamori 2007) suggested that such super-grammars might, as a formal class, be subject to extension up the scale of transfinite numbers, as Langendoen and Postal once hoped for $\mathbf{G_0}$. If we equate or rename $\mathbf{G_0}$ as $\mathbf{\Gamma_0}$, then we might extend and generalize the Chomsky hierarchy as in (28).

(28) $G_0 = \Gamma_0 < \Gamma_1 < \Gamma_2 < \Gamma_3 < \ldots < \Gamma_n < \ldots$

$\mathbf{\Gamma_1}$ might be our ability (and that of "higher" animals) to cope with space-time in a thinking fashion, while $\mathbf{\Gamma_2}$ would be our ability to make reflective sense of our lives, to formulate histories in contexts. Any higher super-grammar would seem to lie beyond the current level of the human mind. And above would be features of a genuine super-mind.

The inner product in (26) bears a superficial resemblance to the Dirac notation used in quantum mechanics (for example, Liboff 1980:93-99). If taken seriously, this model suggests an anti-Cartesian paradigm, namely, that the universe is more like a mind than it is like a clock-work (see too Conway and Kochen 2009) . Randomness is an inherent feature in both. Without randomness, or frozen accidents (Hartle 2003:46, quoting Murray Gell-Mann) in mind and the physical world, existence would have no informational content. All would be predictable and therefore lack information, as the definition of information in (29), when applied to certainty, yields zero. Here **P** is the probability of an event occurring. Since this ranges from zero (cannot happen) to one (certainty), **P** is normally negative. The minus sign therefore makes the information, **I**, a positive number.

(29) $I = -\log_2(P) = -\log_2(1) = 0$

A careful consideration of what spontaneous and creative use of language requires has led us to some remarkable conclusions about grammar and the mind. Further work along the lines adumbrated here promises to enrich our view of both ourselves and of our world.

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XI

Political Discourse

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QUESTION PERIOD MONITORING AND ANALYSIS PROJECT: A PILOT STUDY

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Abstract. Question period (QP) is a Canadian parliamentary institution that takes place every day that Parliament is in session. Surprisingly, there has never been any detailed content analysis of QP to date. The research described here was carried out by the COMM-Lab (McMaster Communication Metrics Lab), using a problem-based methodology that blends traditional scientific inquiry with pedagogical innovation. A first flight of pilot results analyzing Question Period discourse from the 39th and 40th sessions of the Parliament of Canada is presented, followed by a critical discussion of the research methods used.

Keywords: Question Period (QP), Political Discourse, Content Analysis, Discourse Analysis, Research Methods

Languages: (none)

To Date, there has been no thorough scholarly investigation of the content, qualities and impact of QP, even though QP is an important and visible public component of the Canadian political process. The Question Period Monitoring and Analysis Project (QPMAP) seeks to arrive at a theory of QP, based on an interdisciplinary methodology that draws from content, audience, and media analysis; pragmatics, and agenda setting theory.

QP, an event that occurs in the House of Commons of Canada every day that the House is in session, is an important component of parliamentary democracy, since it provides a venue for Members of Parliament (MPs) to seek information from the Government while benefiting from parliamentary immunity. "One of the principal ways by which Members exercise these rights is by asking questions in the House" (House of Commons, 2009). In the Canadian parliamentary system, much political debate and decision-making happens in closed meetings of cabinet or caucus. QP, however, remains one of the most publicly available parts of the Canadian political process (Soroka 2002a:69). QP is also significant insofar as it provides a training ground and media opportunity for backbench MPs (Docherty 1997).

Why is it important to study communication during QP? One answer is that for the last several years there has been a growing chorus in political, academic and media circles for reform of parliament, and during that time QP has been the most visible product and thus the greatest target for immediate revamp. In fact, the Hon. Preston Manning, former leader of the Reform Party of Canada, is typical in his call for reform of Question Period in an editorial that appeared in the Globe and Mail on July 2, 2010: "It's time for a fresh start; let's reform Question Period, the media that cover it and our over-the-top partisan zeal" (Manning 2010).

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However, there remains a problem: Relatively little is known about what is actually said and done during QP. The nightly news in Canada provides a steady stream of sound-bites that lends anecdotal evidence of incivility and staged or irrelevant debates, but the fact is that no one has ever done a comprehensive and thoroughgoing analysis of the content of QP and then connected QP communication content to other political communication – by the Government, by the Official Opposition or by political pundits, journalists, reporters, or bloggers. It is important to have an evidence-based account of the content and function of QP so that any debate to reform it can be guided by fact, rather than opinion or political spin.

1. REVIEW OF LITERATURE. This research is located within the relatively sparse body of literature addressing the intersection of political civility and QP communication. It is also situated within the relatively well-developed areas of linguistic-pragmatic work on politeness/civility; critical discourse analysis of political communication; and the literature on agenda setting functions of parliamentary communication.

1.1. PRAGMATIC APPROACHES TO CIVILITY AND TRUST. Research on civility in public discourse builds on a range of scholarly material in the Humanities and Social Sciences, of which one important area is pragmatic and rhetorical theory. Within pragmatics, which has been largely inspired by the work of Paul Grice (1975, 1989), relevance theory, first outlined by Sperber & Wilson (1995) and further developed by Carston (2002), provided an empirically testable model for pragmatic theory that facilitated the birth of the field of experimental pragmatics, which is being applied in a wide range of fields from cognitive neuroscience to literary analysis to communications. Relevance theory moved pragmatic theory from a static structural code model, to a model that views utterances as being semantically information-minable and networked in predictable ways. Further, the move to relevance theory meant going from a purely functionalist, cooperation-based model to a cognitive-functionalist relevance-based model. According to relevance theory, every utterance carries with it a presumption of its relevance, which guides the process of understanding. Origgi (2004, 2008) argues that underlying the presumption of relevance is also a stance of trust in relevance, which is a potentially measurable variable, as opposed to a trust in truth or honesty, neither of which is easy to measure scientifically. In a seminal and programmatic article, Sperber et al. (2010) developed a relevance theory based concept of epistemic vigilance. Essentially, epistemic vigilance implies the critical stance that humans tend to take when confronted with communicated information that they are considering accepting or rejecting. The researchers describe vigilance toward the source as being determined by two features that the source must possess: competence and benevolence. These two concepts are at the root of civility in communication. Also discussed is the concept of vigilance toward the content. Is the content verifiable against background beliefs that are themselves subject to revision? The coding forms, dictionaries and audience research methodology for QPMAP have been designed with these testable relevance theoretic concepts in mind. Through a very thorough coding form, we have aimed at determining what is said, noting of the identity and salient features of the communicator, and situating the information against the beliefs and attitudinal and affective background of the audience.

1.2. ACADEMIC LITERATURE ON POLITICAL CIVILITY AND QP COMMUNICATION. While the pragmatics theory literature discussing civility and trust is quite well developed, the application of evidence-based content analysis to parliamentary debate is considerably more limited. Scholars Portal (searching back five years) lists just over 400 journal articles and books on issues of civility in general, of which about 10 peer-reviewed journals and books deal explicitly with civility in political communication. For instance, Communication scholars Gurevitch, Coleman, & Blumler (2009:164), typically broad in their approach, "leapfrog" the empirical analysis of parliamentary questions and debates to focus on the "emancipatory potential of new media ecology". We would argue that the validity of Gurevitch et al. is undermined by a lack of empirical evidence of the political discourse discussed. There are only two previous studies that attempt to measure civility within parliamentary debate and both take an indirect approach: one study examines politeness in the Prime Minister's Question Time in the British Parliament (Harris 2001); another web-published study deals with politeness and ethnic sensitivities in debates in the Malaysian national legislature (Ngeow, Hei, & David 2008). Given this state of affairs, it can be said that there is a gaping hole in the literature for research bringing together pragmatic theory, political civility and parliamentary communication.

1.3. AGENDA SETTING AND QP. While much has been written about the agenda setting properties of political communication in and through the media, the specific discussion of QP from these theoretical points of view has been rather sparse, with the exception of Soroka (2002a, 2002b), who establishes a solid empirical foundation for judging the impact of QP on three agendas: media, public, and policy. However, Soroka measures QP communication as a means to identify changes in the Canadian policy agenda, rather than to establish the actual function or effectiveness of QP in the broader political process. Penner, Blidook, & Soroka (2006) undertook a further content analysis of QP from 1988-1999 to examine attentiveness to the issue of taxation versus spending legislation by legislators. They stress that QP is one of the "few venues in which the representational activities of individual legislators and parties [...] can be observed." (Penner, Blidook & Soroka, 2006:1009) They arrive at two key findings: (i) that representation during the period examined was more particularized than generalized; and (ii) "at any given time, parties' behaviour in QP broadly reflects differences in the issue priorities of their partisans" (Penner, Blidook & Soroka, 2006:1019). This research focused on one issue and used a textual database for content analysis. Building on work in this vein of inquiry, QPMAP will examine the links and relationships among many variables, including legislator identity, partisan affiliation, media and social media coverage, to come to a more comprehensive representation of the agenda setting function of QP.

1.4. POWER AND REPRESENTATION IN POLITICAL DEBATE: CRITICAL DISCOURSE ANALYSIS. Critical discourse analysis in the tradition developed by Norman Fairclough (2001,

2003) focuses on two generic goals: (i) highlighting the importance of language and raising the profile of language in the production, maintenance and change of social relations; and, (ii) helping to investigate how language contributes to the privileging of some people's voices and opinions. Critical discourse analysis allows a more qualitative, contextually-driven and historically-grounded interpretation of the data generated by formal content analysis. This enables us to learn about the nature of the interactions in the context of the identities (race, pre-electoral class of origin, gender, seniority, age, level of education, etc.), roles (minister, critic, backbencher, party leader, prime minister, parliamentary secretary, etc.) and relationships (both affective and power-related) between actors.

1.5. Civility and courtesy in non-academic forums and QP reform. The particularly high level of interest in civility in political discourse was highlighted in several papers written by a current sitting member, the Hon. Michael Chong, PC, MP, and, in particular, his initial publication Time to reform question period (Chong 2010b), which placed the subject of QP reform on the national media agenda. Since then, Mr. Chong's Motion M-517 (Chong 2010a) passed its second reading in the House of Commons on October 6, 2010 by a wide margin of 235 yeas against 44 nays. Recent media comment on the subject of QP reform has been widespread, culminating in a conference held in Ottawa by the Public Policy Forum (PPF) on September 16, 2010 (Public Policy Forum 2010). Based on the results of the conference, the PPF produced a list: "Top 10 ideas to improve QP" (Public Policy Forum, 2010a). While this discussion and public debate surrounding QP is a useful exercise in democratic discussion, little of it is based on an empirical analysis of the actual content or discursive patterns of QP communication, its media effects, or its audience reception. QPMAP addresses this evidence gap and will provide a stable platform for evaluating QP and continuing the debate around reform.

2.0. Methodology. Content analysis is the key methodology employed to generate data on the nature of Question Period debate. It will be supplemented in later stages of the multi-year research project by (i) audience reception analysis and (ii) in-depth interviewing and documentary analysis investigating the political discourse and strategy of parliamentarians. We maintain that "employed carefully, [content analysis] can be a useful means of summarizing or describing selected aspects of a large body of material" (Hackett, Gilsdorf, & Savage 1992:10). But it must also be noted that "done in isolation, content analysis provides only limited knowledge about the coding and decoding process – that is, about the preferred meanings embedded in the text, and the interpretive process of receivers" (Hackett, Gilsdorf, & Savage 1992:19). And yet one of the values of well-conducted content analysis is that it provides a reliable and valid starting point for a discussion of the corpus of discourse to be further examined.

2.1. Source text. Content analysis is the systematic analysis of texts in which content is coded and counted using pre-established categories (Bryman & Teevan 2005; Krippendorff 2004; Neuendorf 2002). At this stage, QPMAP employs reasonable proxies of the QP performance via the official Hansard transcripts, in conjunction with A/V recoding of all QPs available on a combination of platforms: (i) CPAC on-line archive (available only for the current session); (ii) Library of Parliament archives (going back eight years), and (iii) the National Archives of Canada, with a complete collection going back to the first televising of the House of Commons in 1977. Preliminary analysis of Hansard transcripts show them to be fairly complete, but they do not convey well the performative aspects and tonality that are better available via audio-visual recordings.1 QPMAP pilot coding sessions (spring 2010) developed a protocol for coders to categorize text from both sources with emphasis on certain categories (e.g. issues and topics) in the transcript, some (e.g., ambient features) from the A/V, and some other categories (tonal characteristics of turn of talk) from transcripts and A/V in combination.

2.2. Sampling. For the initial pilot test of our methodology (spring, 2010) 25 complete QP sessions were randomly selected from the period of 27 November 2008–9 October 2009. Currently (fall 2010) an additional 9 QP sessions for the period 4 November 2009 -11 June 2010 are being coded.

All QP session dates were generated using the standard online calendar randomization program available at: http://www.random.org/calendar-dates. The sampling protocol also has a check to ensure that no particular weekday is predominant, on the assumption that the political and news cycle may vary, for instance between a Monday or a Friday QP.

2.3. Unit of analysis. The unit of analysis is key to the text under investigation. In the spring, 2010, pilot analysis we had coders simultaneously code individual MP statements as well as their turn of talk (TOT). Statements were defined as those utterances that grammatically end with a period or other end punctuation mark, as recorded in Hansard. An individual TOT is comprised of the two-to-six sentence-like utterances that comprise lead-up and delivery of an opposition question or the full response by a Government MP. After careful evaluation in the pilot phases, it was decided for the fall, 2010, coding to exclude individual statement analysis and keep only the TOT as the main unit of analysis for two reasons: (i) the need for immediate consistency; and (ii) the avoidance of side-effects caused by undue complexity.

2.4. Coding schedule/manual. Content analysis in fact depends on (i) the validity of the coding protocols set out in the coding schedule/coding manual; and (ii) the reliability of the coding as measured via statistical test of inter-coder reliability (below). The initial coding schedule in our pilot analysis involved a pen and paper methodology in which a trained team of six graduate and undergraduate McMaster University students coded content according to the following categories:

- Bibliographic – e.g., MP name, date, exchange, etc.;
- Ambient features – e.g., presence of clapping, desk pounding, heckling, etc.;
- Speaker demeanour – e.g., calm, angry, surprised, etc.;
- Fact or opinion – e.g., evidence-based fact, unsubstantiated opinion, etc.;
- Attribution – e.g., type, source, positive or negative attribution, etc.;

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[1] In 1971 Prime Minister Trudeau heckled an opposition member in fairly basic Anglo-Saxon jargon to desist from sexual activity, which Hansard famously recorded as “fuddle-duddle.”

- Question/answer type – e.g., for questions: rhetorical v. information seeking, etc.;
- Topic (primary and secondary) – e.g., taxes, social programs, military, etc.;
- Presence of fallacious argument / Type – e.g., euphemisms, false dichotomy, etc.;
- Overall tone of T.O.T. on 5-point scale – e.g., rude/polite, attacking/supportive, etc.

Subsequently the range of categories was simplified in some areas and expanded in others. It was also adapted to allow for online coding on the basis of the Cormex Research online coding and content management software.2 The online coding schedule was further tested by a group of students in late summer, 2010 and is now operational for new coders, with extensive in-lab three-hour training sessions. A central McMaster University server also makes the textual and A/V material to be coded simultaneously available to all coders.

2.5. Inter-coder reliability. Inter-coder reliability (ICR) tests were undertaken between student coders in the pilot process and will be continued through the next phases. A random sub-sample of the coding results for equivalent material was subjected to Krippendorff's alpha coefficient measure, using SPSS statistical software. An acceptable percentage level of 90% ICR was set. A number of categories had acceptable ICR measures e.g. statement type (100%), attribution present (91%). However, others fell below acceptable standards, e.g. directionality – calm/anger (86%), attribution type (89%). On the basis of this analysis and documented coder feedback in the pilot phases, the coding schedule and manual (as well as system of coder training) have been modified.

3.0. Pilot study results. Note that the random sample included 25 days of oral questions throughout 2009, with a further random sample of 207 statements included for in-depth pragmatic analysis. We treat these results as directional rather than definitive. Our preliminary findings include information on the four following questions.

(1) Who gets to speak?

> Opposition MP comments in our sample make up 55% of time during QP, compared to 45% for Government MPs.
>
> Ontario MPs (33%) and Quebec MPs (18%) make up their fair share, but the West is in in our analysis, with 46% of statements by MPs from Manitoba, Saskatchewan, Alberta and British Columbia. At the other end of the country, Atlantic MPs (and Northern) make up less than 3% And comments from women are not reflective of their representation in Parliament, with only 7% of commentary coming from women (female MPs make up 21% of elected members).

(2) What do they say?

> Mostly they talk about jobs and money. The economy is the number one issue, with MPs spending 54% of QP debating economic topics, with almost one-third devoted to government spending issues or the deficit. Social programs attract only 20%, and other topics, such as Canada's involvement in Afghanistan, for example, warrant 3% of commentary.

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[2] Cormex Research is Canada's leading media measurement and content analysis firm. They have developed a series of electronic coding instruments that Dr Andrew Laing, president of the company, has made available to the COMM-Lab.

(3) How do they say it?

> Only 1/7 statements in QP is a question, of which around 24% are actually what we would categorize as truly information seeking questions. Of the remaining questions, 74% fall under other rhetorical categories, such as veiled statements, rhetorical questions, or questions concerning a complex matter but in which the speaker demands a simple yes-or-no answer. In answering questions, government members often employ deflection statements (*ignoratio elenchi*) that show no direct response to the question posed. Generally, QP statements are not fact-based. Facts constituted only 37% of the total, whereas opinions made up two-thirds of all statements. Moreover, among fact-based statements made, only 16% included a statement of evidence, leaving only 6% of total QP statements that could be called evidence-based fact. Similarly when opinions are offered (about two-thirds of the statements) they often are unsubstantiated; in total only 9% of statements had some form of attribution.

(4) Are they uncivil?

> When coding for MP speaking demeanor, our coders found rude demeanor present in only about 1 in 25 statements (4%). On the contrary, statements with calm demeanor were two-thirds of the conversation (67% of statements), although on both sides of the House, we did find small but significant levels of statements (almost 27%) that fell under the categories of anger, arrogance, or outrage.

4. Practical matters.

4.1. Methodological discussion. Due to the fine-grained nature of the statement unit of analysis, a second coding form was also developed in order to gather impressions left on the coder that were not so easily quantified. The intent of this form was to get an idea of the overall impressions of viewers with relation to MP speakers and correlate the more subjective impressions which the turn-of-talk left on the coder with the more specific data. This form asked the coder to score each MP's turn-of-talk on a Likert scale ranging from one to five, one being the lowest and five being the highest with three representing neither. The specific areas they coded were uninformative/informative, negative/positive, angry/calm, attacking/supportive, rude/polite, irrelevant/relevant, lacking credibility/ credible, partisan/non-partisan, how frustrating the turn-of-talk was for the coder to watch and how insulting the speaker was.

4.2. Coder training. The coder training for the initial form had the volunteer coders, a team of six coders and the two form creators, work through the form together by applying it to the first 10 minutes of an episode of Question Period chosen at random.

Through the same iterative process, a complete coding manual in paper and electronic forms was tested and made available to the summer, 2010, coders and has been refined for use in new training in fall, 2010. The project manager for student training along with the Operations Manager for QPMAP also keep a running log of problems and proposed improvements to the schedule and manual (in real time) and are able to have changes reflected in scheduled form updates with Cormex Research. These improvements through the year have increased the coding rate per QP episode by a factor of 100-200%.

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5. FUTURE DIRECTIONS: TOWARD A THEORY OF QP AND POLITICAL CIVILITY. Encouraged by the results obtained through this pilot study we will take the research in several directions. First, we intend to use a combination of low labour-intensive and partially computer automated text coding to produce a streamlined content analysis dealing with a range of key content areas: (i) issues discussed, (ii) message content, (iii) tonality, (iv) rhetorical strategy, (v) legislator identity, (vi) partisanship, and (vii) pragmatic linguistic features. This will be disseminated via a web-based digital dashboard for navigating data: collected data will be mapped, using text analysis software to highlight the relationships between content variables using interactive infographics. These results will be triangulated to an analysis of media and social media coverage during days surrounding QP to test for the agenda setting function. Finally we will conduct a series of audience tests of a sample of elements of QP, to test for salience and priming effects. Also, from the perspective of open access scholarship, we will make publicly available a linguistically and pragmatically sophisticated database of results for the benefit of other researchers, policy makers and journalists.

The encouraging results reported here have led us to focus on two overarching theoretical aims: (i) to produce a Theory of QP informed by pragmatics, agenda setting, and audience analysis; and (ii) to work toward the development of an empirically grounded, pragmatically-sophisticated and critically-situated definition of political civility in Canadian federal politics. This work will be the focus of our COMM-Lab mandate in the months and years to come.

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METAPHORS AND LIES: A COGNITIVE PERSPECTIVE ON POPULIST POLITICAL DISCOURSE

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Abstract. Metaphor is used to analyze and explain some of the mechanisms of populist rhetoric that allow politicians to make popular statements without actually committing themselves to any concrete opinions or actions. We build on our research on populist rhetoric and, in particular, on our analysis of election promises as parasitic speech acts. In analysing examples from the speeches and electoral platforms of a number of politicians in Italy and Poland, we focus on the way they use metaphors in order to produce conversational implicatures and trigger connotations, and how they exploit both direct (literal) and indirect interpretation of metaphorical statements. We further examine how the use of metaphors in political discourse blurs the separation of indirect discourse from lies and comment on the properties of metaphors that make them such a suitable vehicle for populist rhetoric.

Keywords: Metaphor, Cognitive Frames, Implicature, Connotation, Political Discourse, Populist Rhetoric, Lies

Languages: Polish, Italian, English

Political Discourse is, almost by definition, focused on persuasion. Thus, politicians should not be expected to present facts or opinions in an unbiased way, since the majority of their public speeches serve a specific purpose: to persuade the audience to vote for them in the next election and to help keep them in power (cf. Cecchetto & Stroińska 2005, Cecchetto 2009 and Stroińska 2006, 2007 and in press). In addition to this goal-oriented nature, contemporary political discourse is also shaped by its sound-bite presentation format. Politicians who are able to condense their views into an interesting or memorable one-liner have a much greater chance to have their opinions presented by the media and, thus, heard by the general public and especially potential voters.

Metaphors are perfectly suited for the above-stated purposes of political discourse for two reasons (cf. Dobrzyńska 2010). They offer a way to present complex, often abstract, ideas in terms of familiar and concrete experiences and, in addition, if used in skillful and creative ways, allow for a quick visual representation or some other sensory association in the hearer's mind. A metaphorical presentation of ideas is therefore more easily understood and better remembered, which is precisely what politicians strive for.

A metaphorical expression presents one object (or person or idea, referred to as the tenor) by identifying it with something it is not (the vehicle) in order to explain a complex phenomenon in terms of something simpler and more familiar or to make

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the hearer perceive it in a specific way. Thus, metaphors focus on certain aspects of the object being described while ignoring its other features. While it is usually left to the hearer to interpret the intentions of the speaker, the very use of a metaphor assumes that the hearer has enough knowledge of the object used as the vehicle and enough knowledge of the tenor to understand what motivated the speaker‘s choice of expression.

2. LAKOFF AND JOHNSON'S APPROACH. In the now classic *Metaphors we live by* (1980), George Lakoff and Mark Johnson introduced what was then a new way of looking at metaphors. Metaphors were no longer seen as rhetorical devices used mostly to create artistic effects or to add to the sophistication of one's expression, but as conceptual frameworks that allow us to give concrete and understandable shape to abstract or vague ideas in everyday communication. It was the realization of the omnipresence of metaphors in our daily lives, as well as their profound effect on our understanding of reality that made Lakoff and Johnson's observations so illuminating. Later work by Lakoff, in particular his comments about the use of metaphor in the political and journalistic discourse about both Gulf wars (Lakoff 1991 and 2003), stressed the power of metaphors in our understanding of political affairs. "Metaphors can kill," says Lakoff in the opening sentence of his 1991 paper and provides ample linguistic evidence for this forceful accusation.

In this paper, we look at the use of metaphorical language by both the politicians and the media in Poland and in Italy in order to show that the abuse of the literal meaning of words can be and is systematically exploited for political purposes. Politicians can use non-literal devices as a handy way to hide unsubstantiated claims and accusations, lies, in essence, and get away with it with impunity. After all, they claim, they were just speaking in a metaphorical way.

3. METAPHORICAL EXTENSION OF MEANING AND THE PROBLEM OF EMERGENT PROPERTIES. The idea of using an existing expression to name something else, especially something that does not yet have a name, is referred to as metaphorical extension or catachresis. With time, such expressions become part of the lexicon and no longer require from the hearer a conscious act of interpretation: when talking about a magnetic field or electric current, the hearer treats *field* and *current* in the same way one would process any polysemous expression and only realizes that a meaning shift has occurred in their development if required to ponder their etymology. On the other hand, in the process of interpreting a productive or developing metaphor (i.e. one that has not yet been fossilized in the lexicon), the hearer has to figure out how the expression used by the speaker relates to the object or person or idea under discussion and must, at some point, process the connotations of the literal meaning of the words used (cf. Dobrzyńska 1994 referring to the work of Apresjan & Jordanskaja).

Yet, as has been observed, (cf. Wilson & Carston 2008), in many cases the metaphorical use of an expression produces meanings that are not part of the literal interpretation of the words or phrases involved. These elements of meaning only emerge when the expression is applied in a metaphorical sense. Thus, if someone, talking of a colleague, says *Robert is a bulldozer* (Wilson & Carston 2008:16), the hearer would need to establish which features of "the powerful machine for pushing earth or rocks, used in road building, farming, construction, and wrecking" (Britannica Encyclopedia on-line), normally referred to as *bulldozer*, could be figuratively applied to a human being. The hearer will likely extrapolate the characteristics of "powerful pushing machine" and "able to obliterate all objects in its path" as salient ones for *bulldozer*. These characteristics are then converted to ones applicable to human behaviour, i.e. "pushy, inconsiderate, and forceful." At the end of the process the hearer may arrive at the conclusion that Robert is likely a ruthless person, inconsiderate of the needs or aspiration of others, features that cannot be attributed to a bulldozer. If in doubt about the meaning so constructed, the hearer may ask for an explanation, e.g., "Do you mean he is ruthless?" If this is not what the speaker had in mind, an explanation of the speaker's intended meaning may follow: "No, I meant that he is extremely strong."

Since such emergent properties cannot be assumed as part of the regular meaning of the words used in constructing metaphors, it is our belief that because of this feature they are particularly useful in political contexts: politicians cannot be responsible for associations that are not in a conventional sense implied by the metaphors they use.

4. IMPLICATURE. The first step in the interpretation of a metaphorical expression (or most instances of non-literal discourse) is the realization that the literal meaning cannot be the one the speaker intended. Considered in terms of conversational implicature, as proposed by Grice (1975), metaphorical statements simply violate the maxim of quality (to say what one knows to be true and for which one has evidence) and often also the maxim of relevance, forcing the hearer to search for an alternative interpretation. As the hearer assumes that the speaker intended to communicate something meaningful and relevant to the topic (i.e., follows the co-operative principle) and that the speaker also believed that the hearer would be able to figure out those intentions, they will try to draw a contextually appropriate inference from the speaker's words to what their intended meaning might be. As stated above, in order to proceed along that path, the hearer must first examine the literal meaning of the utterance. We can therefore assume that the literal interpretation of a metaphorical utterance is at some point available to the hearer, if only to be later rejected.

5. EXAMPLES OF THE EFFECTS OF METAPHORICAL EXPRESSIONS. Let us first consider a few examples to illustrate the thesis that a metaphor not only creates a cognitive frame, as proposed by Lakoff & Johnson 1980, but also activates the connotations related to the literal meaning of the expressions and some additional emergent properties. We draw our examples from speeches of Polish and Italian politicians available in the public domain.

5.1. THE COGNITIVE FRAME OF *THE STATE AS A BRIDGE TABLE*. The fragment below comes from an on-line collection of quotes representative of Polish political discourse during the government of the Kaczyński brothers and their party *Prawo i*

Sprawiedliwość 'Law and Justice', in power between 2005 and 2007. The then Prime Minister Kazimierz Marcinkiewicz (from 'Law and Justice'), in his first parliamentary speech indicated that:

(1) "Poles urgently need a state that will not be *a bridge table* [stolikiem do brydża][1] for games played among politicians, business people, current or former functionaries of special services, and common gangsters." (our emphasis).

These words were immediately commented on by Jarosław Kaczyński, the leader of 'Law and Justice':

(2) "*That bridge table* [ten stolik do brydża] that the Prime Minister was talking about here would still be standing and the game played on it would still be going on. *This table has to be overturned* [trzeba wywrócić ten stolik] because this is the first condition of change. The Polish state *must be cleansed* [trzeba oczyścić polskie państwo]." (our emphasis)

The metaphor of 'the state as a bridge table' activates a cognitive frame related to card games, with bridge, a rather sophisticated game, not commonly associated with some of the players mentioned. This relatively positive association is immediately cancelled by Marcinkiewicz, who says that the game is being played by, among others, the secret service and common gangsters. The natural ideation or visual representation in the hearer's mind could then be something like a scene from a gangster movie or in a casino, with money on the table, men with poker faces and guns in their pockets. A link to criminal activities, implicating political leaders as participants in crime, is thus established.

Kaczyński brings a new element to the interpretation of the table metaphor: the table needs to be "overturned" because the state needs to be cleansed. The elicited image of the one who cleanses a corrupt establishment will for many people in a Christian country be reminiscent of that of Jesus Christ overturning the tables of the greedy moneylenders in the temple and forcing them to leave, thus cleansing the house of God of dirt and corruption.

It is not entirely clear to us what intended meaning the audience of these two speeches was to get from the bridge table metaphor as used in the above examples. In a style reminiscent of communist propaganda, Prime Minister Marcinkiewicz uses a negated metaphor ("Poles urgently need a state that will *not* be a bridge table…"): since the absurdity of the literal affirmative interpretation is obvious – no one would want a state that is a bridge table – it is virtually impossible to arrive at a meaningful interpretation for the negated metaphor.

As Jarosław Kaczyński enters the debate, he implies, by the use of the subjunctive, that the Polish state in fact used to be a bridge table, ("the table would still be standing"), but no longer is. He then demands that the table be overturned – which contradicts the implied meaning of the preceding statement (that the table is no longer standing) – and that the Polish state be cleansed. This last demand may imply that the Law and Justice party be given the role of the one who cleanses the state. The need for order and cleansing follows from the metaphor of overturning the table, which elicited the association with Jesus driving the moneylenders from the temple. While this may have been the desired effect, it comes from associations related to the literal meaning of the expression used and not from its metaphorical extension, which must have remained obscure for most audiences.

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[1] Because the Polish contexts are quite lengthy, we have decided to include only the relevant components of the metaphor in the original. Translation of Polish original provided by MS.

Yet, even an obscure metaphor has the potential to linger on in political discourse and, if evoked again, may bring to light a barrage of previous associations. Five years after the concept of the state as a bridge table was introduced into the public discourse in Poland, during the 2010 presidential election, the newspaper *Gazeta Wyborcza* reported on the need for a better strategy for election debates:

(3) "Only then will the audience be able to see that 'agreement builds.' This is indeed a good invitation to enter a debate for an opponent who plays according to the same rules. But it becomes a toothless slogan vis-à-vis someone who, *when 'their hand' is called* [kto wywołany "sprawdzam!"], is rather prepared – as he did in the past – *to kick the table from under the elbows of the players* [wykopać stolik spod łokci grających] and show, underneath, not cards but a revolver…" (Stasiński 2010, our emphasis; translation MS).

Here we find reference to the original metaphor of the card table with gangsters and guns, indicating that the cognitive frame established in 2005 is still available to Polish readers in 2010. Furthermore, the card table metaphor has been expanded to include calling someone's hand, i.e. demanding to see what the other player really stands for, and to kicking over the table, a much more violent turn of phrase than the original *overturning*. According to Lakoff (2004), frames are mental structures that shape the way we interpret the world because they provide us with ways to link together individual entities in our mind (cf. Bloor & Bloor 2007: 11). Thus, anyone who is familiar with card games and gangsters knows that, put together, they do not represent an ideal model for the functioning of society, let alone the state. By casting opposition politicians as participants in that card game, the speakers are suggesting to the audience that they behave like gangsters and are thus not suitable to rule the country. However, they never actually say anything close to this.

5.2. THE COGNITIVE FRAME OF *ACTING AS A BULLDOZER*. For several months after the April 10, 2010, catastrophic crash of the plane carrying Polish president Lech Kaczyński and close to 100 others of Poland's elite, Polish public discourse was dominated by cognitive frames related to death and mourning. The unquestionable tragedy briefly united Poles, irrespective of their political affiliations. However, very soon it became clear that the old rule of *not speaking ill of the dead* could easily be exploited by some to score political points.

In this context, the mayor of a city where activists wanted to establish a memorial to the late president was quoted as saying:

(4) Lech Kaczyński has not done anything for our city and was a weak president of the country. This idea is an attempt *to make a political bulldozer out of a casket* [próba zrobienia z trumny buldożera politycznego]. An action of this kind will divide and antagonize.
Gazeta Wyborcza, April 29, 2010. (our emphasis.)

The concept of using a physical casket as a bulldozer could be interpreted literally, but the bulldozer metaphor is lexicalized to the extent that it is easy to grasp the intended meaning. Someone is using the argument of the president's death to push an unpopular idea through bureaucratic red tape.

5.3. NECROPHILIA. Around the same time, Władysław Bartoszewski (historian and former Minister of Foreign Affairs), in an interview for the Austrian daily *Der Standard*, commented on the use of the tragedy by Lech Kaczyński's twin brother Jarosław to gain public sympathy. His comments were subsequently the topic of his interview for the Polish daily *Gazeta Wyborcza*:

(5) If Jarosław Kaczyński will – and in recent days this has already started to be the case – exploit the tremendous loss that he suffered as an election argument, then I will have to say: I am opposed both to pedophilia and to *necrophilia* [nekrofilia]. (Leszczyński 2010, our emphasis)

Attacked for the use of the word *necrophilia*, Bartoszewski explained:

(6) I used 'necrophilia' as a metaphor and not as a label. … I have always called things by their name, even if I had to pay a price for it. (ibid.)

It is interesting to note that what Bartoszewski says is actually contradictory: he is not calling something by its name since he himself says the word is a metaphor. One may actually agree with his explanation, since Bartoszewski defines necrophilia not as a sexual attraction to dead bodies but rather, more generally, as the sentimental appeal that the dead elicit in those still alive, and the use of this appeal for ulterior purposes[2] (ibid). This, in itself, can be seen as a metaphorical extension of the literal meaning but this extension is not a natural one and would likely not be available to the audience. Thus, it can be assumed that Bartoszewski used the term necrophilia with the intention of making the hearer interpret it literally, with all of its negative connotations. Only then would the hearer try to make sense of this clearly bizarre accusation and try to come up with a more plausible (extended) meaning.

5.4. BERLUSCONI'S CORPORATE METAPHORS. Italian Prime Minister Silvio Berlusconi is a media mogul who owns or controls about 75 – 80% of Italian TV and print media. He is also the leader of the populist right-wing party *Popolo della Libertà* 'People of Freedom', now in power in Italy. His media industry brought American style politics to Italy and he himself uses American tabloid style sensationalism in his speeches and interventions. His campaign song *Meno male che Silvio c'è* translates into a boastful "Thank God for Silvio!" He is known for using so-called party agitators placed in the audience of his highly emotionally charged public speeches in order to promote what some label as mob mentality. The effectiveness of Berlusconi's rallies has pushed the opposition parties to describe them as *squadrismo* 'squads', reminiscent of Mussolini's tactics. Berlusconi's own speeches often seem purposefully ambiguous and predisposed to multiple interpretations. His public appearances usually become a spectacle where political discourse is simply part of the performance. The high frequency of metaphors in his speeches is part of this design. Berlusconi uses a number of established cognitive frames that can then be activated in his speeches and that allow him to direct the audience's understanding of his political maneuvers in the desired way.

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[2] We thank one of our reviewers for pointing out this valid interpretation.

It must be recognized that Berlusconi is a very successful businessman and that his corporate success is his most powerful instrument of political suasion. It is therefore quite understandable that by using the metaphor *the state is a corporation*, Berlusconi can present himself as an experienced manager of that corporation who can be trusted with leading it to success. The second metaphor used by Berlusconi to talk about the state is that of a *team*. Here, the speaker is again using self-reference, as he is the owner of the Italian soccer team AC Milan. Running the state business as if it were his soccer team allows him to score points based on Italian sports achievements (cf. Semino 2008: 98-99). Just as the metaphor *the state is a soccer team* transfers the features of one entity to the other, Italian soccer success translates into the political success of the team's owner. Simone Tomirotti tries to answer the question, how will Berlusconi win again in Italy? He explains:

(7) "Why is Ac Milan so important for Mr. Berlusconi's political life? Because in Italy, there are 11,4 million of people that are fans of Ac Milan, and at the last election in 2008, People of Freedom collected about 13 million votes. If Mr. Berlusconi didn't do anything for his football team, Ac Milan fans could use their vote against his party." (September 12, 2010, Tomirotti blog entry. Original spelling and grammar maintained.)

By financially supporting AC Milan and talking about the Italian state as if it were a soccer team, Berlusconi is almost sure to score points among sports fans during the upcoming election. And even if the team loses, the loss can be blamed on a left wing referee (cf. Tomirotti blog) and still benefit Berlusconi.

5.5. BATTLE METAPHORS FOR SPORTS AND THE LANGUAGE OF POLITICS. The use of a sports metaphor to describe an honourable political struggle for victory is not new and by no means restricted to Italy. Goebbels and Hitler had already used an abundance of sports metaphors in their political speeches (cf. Klemperer 2000, German original published in 1947). One of their most frequent frames was that of the boxing ring, as it is more acceptable to compare the political arena to a match in the boxing ring than to a fistfight. Berlusconi's preference for soccer shows in his adoption of the football cheer *Forza Italia* ('Go Italy!') as his party's name. (*Forza Italia* amalgamated with *Alleanza Nazionale*, the remnants of the former Fascist Party, to form *Popolo della Libertà*). But soccer is also a team sport played on a field, thus allowing for statements such as this:

(8) *dobbiamo scendere in campo per l'Italia*
'we have to take the field for Italy'

With the popularity of soccer in Italy, soccer metaphors belong to the set of established dominant metaphors and provide an excellent cognitive frame for political activities.

Conflicts and battles in Italian politics are not always disguised through the use of sports language. Examples of war metaphors and military language such as those below can also be found, especially in the discourse of the *Lega Nord* party and its leader Umberto Bossi:

(9) *Silvio ha la spada affilata*
'Silvio has a sharp sword'

(10) *...prepariamo lo scudo fiscale*
'we are preparing a fiscal shield'
il Giornale.it, July 16, 2010

These types of metaphors, however, have been in circulation for so long that they no longer require the hearer to go through the stages of interpretation that are characteristic for productive metaphors. They do not trigger conversational implicatures, as hearers do not even try to interpret them literally. In other words, the extended meanings have already become part of the core meaning of the expressions used. However, the abundance of these metaphors reinforces the visual image that had faded with their lexicalization and serves to make them productive once again. A similar revitalization of metaphors connected with the concept of *falling down* as applied to finances could be observed during the recent *crash* of the global financial markets and the *collapse* of world economies.

5.6. Religious metaphors. Another domain that provides very productive connotations for political discourse in Italy is the Christian tradition. By comparing himself to Jesus Christ, Berlusconi naturally implies that he is the only one destined to save Italy. Thus statements such as those below, fit perfectly with this rhetorical strategy:

(11) *Sono il Gesù Cristo della politica italiana.*
'I'm the Jesus Christ of Italian politics.'

(12) *Mi sacrifico di continuo per voi.*
'I continue to sacrifice myself for you.'
Claudio Tito, *la Repubblica*, February 12, 2006.

While the roles in this cognitive frame are pre-assigned and Jesus/Berlusconi is the Saviour, the unexpected use of an iterative form of the verb somewhat disturbs the illusion: Christ sacrificed himself only once while Berlusconi is doing it continuously. Although this makes Berlusconi seem ineffective in comparison with Christ, he is highlighting to the Italian people that the political circumstances are such that his continuous sacrifice is required. Thus, he presents himself as more of a martyr and saviour for Italy than Christ was for the world!

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6. How to argue with a metaphor. Dobrzyńska (1994:140) points out that suggestive metaphors like the ones discussed above are not neutral from the axiological point of view, as the concepts they employ invoke specific values in the intended audience. Dobrzyńska further notes that, for this reason, metaphors are a very handy instrument of persuasion for politicians and the media, especially because the value judgments are passed on through connotations and therefore cannot be easily contested. In linguistic terms, opinions expressed through metaphors cannot be debated because metaphors cannot be negated.

If someone were to say that Silvio Berlusconi is not the Jesus Christ of Italian politics, this statement would be a truism and not a suitable polemical response. At the same time, one cannot negate the implied meaning – that Berlusconi is the saviour of the Italian people – because that message has only been expressed indirectly, i.e. through the connotations of the Christ idea (Dobrzyńska 1994:141; cf. also Black 1979).

If accused of making false statements or allegations, the politician can always claim that he or she did not intend his words the way they were interpreted (cf. Bartoszewski's explanation quoted in 5.3). If a statement by Berlusconi causes an uproar, he usually recants almost immediately (or at the very latest the following day), or he accuses his opponents of lying, as illustrated in the examples below, which have become familiar refrains in the last two years of Berlusconi's mandate:

(13) *Mi avete fainteso!*
'You misunderstood me.'

(14) *Inaccettabili menzogne su di me!*
'Unacceptable lies about me!'
il Giornale.it, June 2 2010

Dobrzyńska suggests that a better way of fighting powerful metaphors is by either replacing them with competing metaphors, or – if that *exchange of fire* fails to change the audience's perception – by *disarming* them, metaphorically speaking. Thus, while there is no point to arguing that Berlusconi is not the Jesus Christ of Italian politics, one may suggest that he may rather resemble Judas Iscariot or another known persona from the Christian tradition. This means staying in the sphere of non-literal communication and putting the metaphorical *ball in the court* of the opponent. Semino (2008: 84) quotes empirical studies by Mio 1996 and 1997 that "have shown that, in political debates, metaphorical expressions that extend an opponent's metaphor have a particularly high persuasive power."

7. METAPHORS PROMOTE INTIMACY. An interesting observation about another effect of using metaphors was made by Cohen (1978), who suggested that the very fact of engaging jointly in the process of meaning creation and interpretation instills a feeling of closeness between the speaker and the hearer. Being able to figure out the implicatures and arrive at the indirect interpretation of a metaphorical expression assumes a certain level of similarity and mutual understanding. The hearer becomes an accomplice in producing the intended interpretation even if he disagrees with the

message. This may be of particular importance or usefulness in political discourse, where the speaker's goal is to attract the audience. One could compare this to the situation of someone hearing a racist joke and being able to understand what makes it funny. Even though he or she may be offended by the views of the speaker, by seeing the point that joke was supposed to make, they become an accomplice in deriding the racial minority[3]. Understanding a metaphor used by a politician makes the hearer share that politician's point of view, if only for an instant.

8. CONCLUSION. It is impossible to ban metaphors from political discourse as even our everyday communication is permeated with non-literal expressions. In everyday discourse, the hearer uses context and knowledge of the world in order to arrive at the most relevant interpretation of the metaphor. In political discourse, on the other hand, the speaker often uses a metaphor that invites a wide range of associations and counts on the hearers to activate those associations in order to strengthen the effect of the message. We all know that metaphors cannot be interpreted literally as they present objects by labeling them with names that belong to other objects. Thus, metaphors, by definition, are not true when interpreted literally. They are so popular among politicians, though, because, as George Orwell aptly observed, "political language … is designed to make lies sound truthful …" and metaphors have become invaluable tools for blurring the distinction between what is said, implied, or understood, and what is true or false.

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[3] We are using the terms *racist* joke and *racial* minority here to differentiate the negative and nasty connotations and sometimes overt attacks on representatives of particular racial groups as opposed to the terms *ethnic* joke or *ethnic* minority which often play on known stereotypes.

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XII

Hard-Science Linguistics

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ORTHOCONCEPTS:
HOW THE PROPERTIES THEY REPRESENT ARISE

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Abstract. The orthoconcept was introduced into Hard Science Linguistics as a way to describe properties of a physical reality formed in an observer. An orthoconcept is not a concept in a logical-domain sense but attempts to explain a person's understanding in physical-domain terms. An orthoconcept thus is a theoretical representation of a property of a person communicating; it does not necessarily correspond to something external to that person. We consider how orthoconcepts arise as a result of a combination of external events and the expectations of the person. The different understandings of a believer and a skeptic at a séance are used to illustrate how this can occur.

Keywords: Lies, Lying, Truth, Hard-Science Linguistics, Human Linguistics, Orthoconcepts

Languages: English

THE ORTHOCONCEPT WAS INTRODUCED into hard-science linguistics as a way to describe "properties of a real observer that model a physical reality and require an observer in which to form" (Yngve 2006:268). An example of this is shown in (1) - (3). Suppose we have a situation in which Mary calls to John from the next room and asks if the light is on. John sees the overhead light and a light switch. Following the notation of Yngve (2006), we would model the relevant aspects of this situation as a linkage (1) consisting of two participants (which we model as [Mary] and [John]) and two props (which we model as [light] and [switch]). The participants and props model physical subsystems of the larger physical system modeled by the linkage.

(1) [Light Query] = [Mary] + [John] + [light] + [switch]

John is not only engaged in the event as one of the people communicating but is also an observer of the situation, a fact which we describe in terms of an observer linkage in (2a) and a corresponding property of the role part [John-observer] within that observer linkage in (2b). Note the role part [John-observer] is the functional aspect of John as a part of the observing linkage [Obs Light Query]. As Yngve has shown elsewhere (2006), orthoconcepts are best handled as properties of observer role parts.[1]

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[1] This is an appropriate point at which to clarify the key distinction between participants and role parts in a Hard-Science Linguistics model. A participant is a model of a physical subsystem within a linkage model — specifically, a model of a person as a physical system. In contrast, a role part is a model of the physical cause-effect aspect(s) of that person within the larger system. An example, would be when either of two different people enters into a system (modeled as a linkage) with the same cause-effect potentials within that system (e.g., as a customer in a check-out line, modeled as the role part [customer]).

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(2) a. [Obs Light Query] = [John-observer] + [Light Query]
b. [John-observer]<[Light Query] = [Mary] + [John] + [light] + [switch]>

In HSL notation, brackets [ ] identify systems / subsystems and pointed brackets < >, properties of systems / subsystems. The general form to identify a system and one of its properties is [System Name]<Property Name>.

A property of the linkage [Light Query] might include whether it is in progress or not at a given time. We would represent such a linkage property as [Light Query]<in progress> or [Light Query]<-in progress> (the minus sign "-" indicating Boolean false).

A property of the switch as in the on or off position could be represented as a property of the prop [switch], a subsystem of [Light Query], thus, as [switch]<in on position> or [switch]<-in on position>.

[John-observer]<[Light Query] = [Mary] + [John] + [light] + [switch]> explicitly identifies <[Light Query] = [Mary] + [John] + [light] + [switch]>, the orthoconcept, as a property of [John-observer].

Here we are modeling John's understanding of the communicative interaction in which he is taking part, but doing so in terms of the physical-domain systems involved, without creating entities by assumption. Thus, an orthoconcept is not a concept in a logical-domain sense. Rather, it attempts to explain a person's understanding in physical-domain terms, rather than in the logical-domain terms of a concept.

Following Yngve (2006), if John understands the light to be off (not on), we describe this in terms of John having a certain property which we describe in the role part [John-observer].[2] See (3).

(3) [John-observer]<[light]<-on>>[3]

To sum up what is being shown in (1) – (3): (1) models John and Mary communicating about the state of the light, (2a) relates John's understanding of this interaction to the interaction itself, and (2b) models John's overall understanding of the interaction.

One might infer from this model that the orthoconcept

[John-observer]<[light]<-on>>

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[2] The reader may wonder why we do not simply make the observer role part a subsystem of the linkage [Light Query] instead of modeling a separate observing linkage. There are cases, however, in which one can have an understanding of (be an observer of) a linkage in which he/she is not taking part. Yngve (2006) gives the example of a person watching a game of tag who has an understanding of who is "it", even while not being a player in the game. Thus we adopt the approach of using a separate observing linkage in all cases simply because it provides a single, general solution.

[3] The following is *very important* to note. In (1), [light] and [John] model physical subsystems within the linkage modeled as [Light Query]. However, in (3) "[light]" is part of the representation of a property of John, that is, his understanding of the state of the light: <[light]<-on>>; it does not model a physical system. The importance of this becomes clear below.

as a property of [John-observer] in [Obs Light Query] is somehow derived directly from the property of the prop [light] in [Light Query]. Yngve (MS in progress) recently has elaborated on the construct of orthoconcepts first presented in Yngve (2006) by saying,

> not only does formalizing the observer give us ‘concepts’ (orthoconcepts) in the observer of what is being observed, it gives us ‘attribution’ or ‘predication’ of properties that the observer expects and confirms in expectation procedures executed during the observing (here hearing). The properties that get ‘predicated’ here come from ‘connotations’ but they don’t have to. They could come from any property expected as a result of hearing or seeing etc.

Take the case of John and Mary discussing whether the light is on. According to the earlier view (as elaborated by Yngve just above), this allows us to describe an orthoconcept like

[Mary-observer]<[light]<on>>

even when the light is in fact off. The property that is being predicated (represented by [Mary]<[light]<on>> in an observing linkage with Mary as observer) does not have to come from the actual state of affairs (represented by <[light]<-on>> in the original linkage of which [Mary] is included).

In many cases, this seems to work very well in explaining many aspects of behavior when people are communicating (Yngve 2006, Sypniewski & Coleman 2010, Coleman 2010). But we must be careful what we mean when we refer to an OBSERVER LINKAGE. As we will show, we cannot directly derive an orthoconcept in the observer linkage from something in the linkage that models the original assemblage[4] of people and objects being observed.

1. OBSERVATIONS AND THE OBSERVER. There are cases in which people behave as if something were out there to observe when it is in fact not present in the physical domain. For example, if two people are at a séance, one a skeptic, the other a believer in the occult, their communicative behavior will differ greatly if they hear a rapping noise from under the table and a third party asks, “What was that rapping?” Following Yngve (2006), we would describe this via a linkage and two observing linkages.

(4) [Séance] = [medium] + [skeptic] + [believer] + [table]

The linkage [Séance], shown in (4), describes the physical system of interest. Within it, we see four physical subsystems of special interest. Three are the people involved, which we model as the participants [medium], [skeptic], and [believer]. The fourth subsystem of interest is the table, which we model as the prop [table].

(5) [Obs Séance B] = [believer-observer] + [Séance]

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[4] The term ASSEMBLAGE refers to the actual physical system (not our model of it), consisting of the people communicating, relevant physical objects, other parts of the surroundings, and the energy and means of energy flow. In HSL, a linkage is a model of an assemblage as a whole. We model the physical subsystems of the assemblage as participants, props, the setting, and channels, respectively. We model the functional cause-effect aspects of these physical subsystems as role parts, prop parts, setting parts, and channel parts.

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We can describe an observing linkage for the believer ([Obs Séance B]), shown in (5). Now suppose that during the séance there is a rapping sound in the darkened room. While the skeptic will probably attribute the sound to some chicanery on the part of the medium, the believer is far more likely to attribute the sound to a supernatural agency, i.e., a spirit. We describe this understanding of the believer in terms of a property of our model of the believer as observer, that model being [believer-observer]. This property is represented as [believer-observer]<[spirit]<rapping>>. In the observer role part we use to model the skeptic as observer, on the other hand, there is no equivalent orthoconcept. Rather, there is one we would represent as [skeptic-observer]<[medium]<rapping>>.

Linkage	[Séance]		**Linkage**	[Obs Séance B]
Participants	[medium] [skeptic] [believer]		**Role Part**	[believer-observer]
Prop	[table]		**Observed Linkage**	[Séance]
Channel	[rapping]			
(a)			**(b)**	

Figure 1. The Linkages [Séance] and [Obs Séance B] and Their Key Parts.

It is clear that in the case of the believer, we cannot follow a line of inference that derives [believer-observer]<[spirit]> from a system [spirit] in [Séance], since no such system exists there (See Figure 1; refer also to footnote 3.). Orthoconcepts in observer linkages cannot be directly derived from the ordinary linkages with which they are associated. Rather, they must arise as a result of a person's properties in response to contemporaneous events in the person's environment. Our model must properly describe that, as we will see below.

2. Observing and expectation. During the séance, the skeptic and the believer have different expectations: the believer expects a spirit; the skeptic expects chicanery. In HSL, we can model how these expectations result in different understandings in the two people as to what is or is not present in their environments.

2.1. Expectations involving orthoconcepts. Let us suppose that under certain circumstances the believer is likely to expect the presence of a spirit. These circumstances might include attending a séance, being in a house said to be haunted, and so on. We can describe such an expectation via an expectation procedure (Yngve 1996:263-64). The generic form for an expectation procedure is shown in Boolean notation in (6), as a group of setting and control procedures. These are explained one at a time, below.[5]

(6) a. set :: expectation
    b. event :: -expectation
    c. expectation : del-exp, Δt_1
    d. -expectation x del-exp : next[6]

---

[5] Setting procedures are indicated with a double colon "::", control procedures with a single colon ":".

[6] In HSL notation, "x" indicates Boolean and. This should not be confused with "+" in linkage

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In (6a), *set* represents the condition which creates the expectation; (6a) as a whole is called a SETTING PROCEDURE. A setting procedure indicates that when the expression on the left becomes true (changes from false to true), the property on the right becomes true. The property on the right does not automatically revert to false when the expression on the left changes back to false. Thus, when *set* becomes true, *expectation* is set to true. In (6b), the occurrence of the expected event (*event* becoming true) fulfills the expectation; that is, it sets *expectation* to false. In (6c), we see what is termed a control procedure. In a control procedure, the value of the expression on the left controls the value of the property on the right. Hence, in (6c), the value of *expectation* is matched by the value of *del-exp*. However, there is a time delay on *del-exp* (indicated by Δt_1) such that when *expectation* changes to false, del-exp will change to false only after the time Δt_1 has elapsed. In (6d), we see another control procedure. When the expectation is satisfied (when *expectation* goes back to false) AND ("x") *del-exp* is still true, *next* becomes true for the period remaining in Δt_1.[7]

Here is the expectation procedure for our believer, showing how it gives rise to the believer's understanding that there is a spirit present (7). Material in /* */ explains the HSL notation in ordinary prose. Further explanation follows in the next paragraph.

(7) a. <location/séance> :: <expect spirit>
/* at a seance, the believer expects a spirit */
b. <hear/rapping> v <hear/moan> v <see/shadow> :: <-expect spirit>
/* rapping, moaning, shadows fulfill the expectation */
c. <expect spirit> : del-exp, Δt_1
/* while the spirit is expected, set a delay on extinguishing the expectation, Δt_1 */
d. <-expect spirit> x del-exp :: <[spirit]<in contact>>
/* when the expectation is fulfilled and waiting, understanding of the situation includes that a spirit is in contact */
e. <-location/séance> :: <-[spirit]<in contact>>
/* when the believer leaves for another location, his understanding that a spirit is present returns to false */

In (7a-e) we see an expectation procedure to describe the believer's expectation that a spirit will be present in the environment. It models an aspect of the role part of the believer, [believer-observer], as an observer in the linkage [Obs Séance B]. In (7a), we represent the creation of the expectation when [believer] is in the setting [séance]. We state this by means of the property <location/séance>. One possible setting is given here, but the list could be much longer (including houses believed to be haunted, graveyards, so-called reality programming on TV about the occult, etc.), or could be stated in terms of a property or set of properties common to the settings instead of by listing the settings themselves. In (7b) some possible events which ful-

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definitions, used to indicate the part / whole relation of subsystems to a system.

[7] Thus, without the delay in Δt_1, there would be no overlap in -*expectation* and *del-exp* being TRUE, and no output value of TRUE would be produced at the end of the expectation procedure. The output of true is needed to signal that the expectation procedure has completed and it is time for the next procedure to be performed.

fill the expectation are stated; these could include hearing rapping or a moan, seeing a shadow, and so on. The control procedures in (7c) and (7d) limit the timing during which the expectation can be fulfilled.[8] The fulfillment of the expectation results in the activation of the property <[spirit]<in contact>> by setting its value to true.

As a property of the role part [believer], <[spirit]<in contact>> is the orthoconcept [believer]<[spirit]>. That is to say, what we show explicitly here in theory is that the orthoconcept arises as a result of a combination of external events and the expectations of the person. Above, note that (7d) is given as a setting procedure (note the double colon "::") rather than a control procedure (which would be indicated by a single colon ":"). This is because the orthoconcept [believer]<[spirit]> is activated by this expectation procedure (sets its Boolean value to true) and remains active until some other change in conditions — such as a change in the setting to one in which a spirit is not expected — deactivates it (resets its value to false). This is indicated in (7e), which resets the orthoconcept [believer]<[spirit]> back to Boolean false when the believer moves to a setting in which a spirit is not expected.[9]

2.2. Expectations involving 'attributions' (properties in orthoconcepts). Being at a séance creates an expectation in the believer that a spirit may be observed. When a rapping sound is heard and no obvious cause can be determined, the believer is likely to attribute the rapping to the action of a spirit.

In HSL, we describe the rapping sound in terms of a channel:

> A *channel* is a representation in linguistic theory of the physical means of energy flow and the energy flow itself in an assemblage that includes just those properties that are required to account for the communicatively relevant energy flow in the assemblage (Yngve 1996:128).

Thus, we can model the rapping sound by the channel [rapping], a part of the [Séance] linkage we might elaborate as (8). See also Fig. 1 (a), above.

(8) [Séance] = [medium] + [skeptic] + [believer] + [table] + [rapping]

We can model the sensation of the channel [rapping] in the believer as an orthoconcept of [believer], (9).

(9) [believer-observer]<[rapping]>

We must be careful to distinguish between the physical energy flow, which we model as the channel [rapping], and the believer's understanding of it, which we model as the orthoconcept [believer]<[rapping]>.[10] To see why, consider the believer's understanding of the cause of the rapping sound: he believes it to be the action

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[8] The timing depends on a number of factors at different levels of description, for example, attention due to salience of the stimulus (where change blindness might be involved, for example), general rate of decay of signals at the neurological level, and so on.

[9] For example, the believer might see a pen levitating over a table during a séance and understand a spirit to be the cause. The same person, in a science classroom, however, would be likely to interpret the pen's behavior as a trick arranged by the science teacher (e.g., by lifting it with magnets).

[10] See also Yngve (1996) discussing "People, Sound Waves, and Illusions", esp. pp. 1-3).

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of a spirit, even if it is actually the medium using a device hidden under the table or concealed under clothing.[11] Thus we would distinguish (10a), an actual property of the assemblage modeled as a channel in the linkage, from (10b), an orthoconcept including the believer's attribution of a property to a sensation.

(10) a. [rapping]<source/[medium]<rap with stick>>
b. [believer]<[rapping]<source/[spirit]<rap psychokinetically>>>
c. [skeptic]<[rapping]<source/[medium]<rap with stick>>>

In (10a), we model the actual source of the rapping sound as a procedural property of the medium, [medium]<rap with stick>. In (10b), we model the believer's understanding of the source of the rapping sound as a spirit using supernatural powers to affect the physical domain.

In (10c), we model the skeptic's more accurate understanding of the source of the rapping sound; it seems to mirror (10a). But this is not to say it can in some sense be directly derived from (10a) or that expectation is absent as a key factor in the skeptic's understanding. The skeptic's past experience with mediums is likely to create an expectation that the medium in this séance is faking the noise. This is represented in (12) as an aspect of the role part [skeptic-observer] in the observing linkage [Obs Séance S] (11).

(11) [Obs Séance S] = [skeptic-observer] + [Séance]

(12) a. <location/séance> :: <expect trickery>
/* if at a séance, be ready to identify trickery from the medium */
b. <hear/rapping> v <hear/moan> v <see/shadow> :: <-expect trickery>>
/* hearing rapping or moan, seeing a shadow fulfills the expectation of trickery */
c. <expect trickery>>> : del-exp, Δt_1
/* while trickery is expected, wait (delay the expectation) */
d. <-expect trickery>>> x del-exp :: <id>
/* when the expectation is fulfilled and waiting, proceed to id */

The skeptic's understanding of the trickery performed by a medium would depend on his experience and might include devices to fake supposedly supernatural noises, to levitate the table or other objects, to release odors, and so on; see (13).

(13) [skeptic-observer] <identify trickery> =|<id> x <hear/rapping> ::
<[medium]<rap with stick>>,
<id> x <hear/moan> :: <[medium]<fake/moan>>,
<id> x <feel/table levitate> :: <[medium]<lift/table>>,
<id> x <smell/odor> :: <[medium]<release/odor>>,
(etc.)

In (13), the selection procedure [skeptic-observer] <identify trickery> is used to model the skeptic's attribution of the cause of purportedly supernatural events during the séance. A selection procedure consists of a series of control procedures. It selects among a set of possible outcomes. Here, the possible outcomes are <[medium]<rap with stick>>, <[medium]<fake/moan>>, <[medium]<lift/table>>, <[medium]<release/odor>>, etc. The selection is based on which condition is present <hear/rapping>, <hear/moan>, <feel/table levitate>, <smell/odor>, etc., respectively. The selection is made only when <id> has been set to true (note the logical AND represented by "x").

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[11] A very simple example is an apparatus concealed in the table which the medium can operate with one foot, making a rapping sound on the table top, far enough from where he is sitting that it appears he cannot be the cause.

3. Concluding remarks. Above, we have cases where different people hear the same noise but interpret it in completely different ways based on their expectations. It is not simply that they expect different events; their expectations create very different understandings of what is present in the assemblage. We have modeled this in terms of different sets of orthoconcepts attributed with different properties. HSL allows us to show explicitly within the theory how orthoconcepts arise as a result of a combination of external events and the expectations of the person.

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XIII

Academic Language

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ANALYSE D’UN GENRE UNIVERSITAIRE: LES REMERCIEMENTS DANS LES MÉMOIRES ET THÈSES RÉDIGÉS EN FRANÇAIS PAR LES ÉTUDIANTS-CHERCHEURS CAMEROUNAIS

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Abstract. Cette étude analyse l’organisation textuelle d’un genre universitaire au Cameroun: les textes de remerciements dans les mémoires et thèses. L’analyse de 100 textes, à partir des méthodes de l’analyse des genres textuels et de la notion de move, met en évidence la macrostructure des remerciements composée des unités fonctionnelles suivantes: 1- l’en-tête, 2- les remarques préliminaires / l’introduction, 3- les remerciements, 4- les annonces, 5- la signature / la conclusion. Il s’agit ici d’une structure maximale et non prototypique, c’est-à-dire toutes les unités fonctionnelles identifiées n’apparaissent pas dans un même texte. Sont aussi mises en lumière quelques similitudes avec les textes de remerciements des étudiants de culture anglo-saxonne et/ou arabo-musulmane et des contrastes surtout du point de vue des formes, types et cibles des remerciements exprimés.

Mots-clés: Genre Textuel, Organisation Textuelle, Remerciements, Mémoires et Thèses, Français.

Languages: (none)

Les Auteurs d’ouvrages, d’articles Scientifiques, de rapports de recherche et des travaux conduisant à l’attribution d’un titre/diplôme universitaire remercient généralement les personnes qui les ont aidés dans la réalisation desdits travaux. Les textes écrits à cet effet sont, il faut le souligner, loin d’être une énumération ou juxtaposition de formules de gratitude. Ces textes relèvent d’un genre de discours[1] dont la production obéit à un certain nombre de contraintes qui varient en fonction des communautés discursives. L’attention accordée, ces dernières décennies, à ce type de textes est surtout remarquable en linguistique appliquée et en analyse du discours. Les recherches existantes sont consacrées, d’une part, aux textes de remerciement (désormais TR) dans les articles et ouvrages scientifiques.2 On citera, à titre d’exemple, l’étude de Gianonni (2002) qui est une analyse contrastive de l’expression de la gratitude dans quelques articles publiés dans des revues scientifiques anglo-américaines et italiennes. On observe, d’autre part, une littérature abondante sur les TR dans les mémoires et thèses. Les études recensées dans cette catégorie sont entièrement ou partiellement consacrées aux travaux des étudiants des universités anglo-américaines

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[1] Dans la suite de notre propos, nous utiliserons les termes genre de discours, genre textuel, et type de texte de façon interchangeable.

[2] Pour une synthèse des travaux de cette catégorie, voire Hyland (2003: 243-245) et Giannoni (2002: 4-9).

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(Gesuata 2004, 2004b; Scrivener, 2009[3]), ou se penchent sur les mémoires et thèses rédigés en anglais par des scripteurs des universités de Hong Kong (Hyland 2004; Hyland & Tse 2004); et les thèses de doctorat rédigées en anglais par les étudiants arabes (jordaniens) (Al-Ali 2010). L'espace camerounais est représenté par l'étude de Nkemleke (2006) qui analyse les TR dans les mémoires de fin d'étude des étudiants anglophones.

Si les TR en anglais ont reçu beaucoup d'attention, les TR francophones, à notre connaissance, n'ont pas encore été assez étudiés[4]. De là, l'intérêt de cet article, dont le but est de montrer comment les étudiants-chercheurs francophones organisent leurs TR. Pour ce faire, nous tenterons de mettre en évidence la structure générique des TR dans les mémoires et thèses au Cameroun. Une attention particulière sera accordée aux fonctions des TR ainsi qu'aux différentes composantes de leur macrostructure. Nous nous inspirons de la théorie de l'analyse de genre élaborée par Swales (1990) et développée par Bhatia (1993) et des études de Hyland (2003; 2004) consacrées aux TR dans les travaux universitaires. Après avoir situé le cadre théorique de notre étude, dans lequel nous relèverons les particularités fonctionnelles et structurelles des TR, nous présenterons notre corpus d'analyse. Dans la dernière partie de notre étude, nous exposerons brièvement les résultats de nos analyses empiriques. La conclusion relève quelques différences et similitudes entre les TR en milieu camerounais et ceux d'autres espaces culturels et identifie des pistes pour la recherche à venir. Il faut préciser que l'objectif de cette étude est de mettre en lumière la structure générique des TR en français. L'analyse contrastive de l'organisation rhétorique des TR en français et en anglais et dans d'autres langues pourrait constituer l'objet d'une autre étude.

1. Quelques considérations théoriques.

1.1. Le remerciement comme genre textuel multifonctionnel. Comme nous l'avons déjà relevé dans notre introduction, les TR constituent un genre de discours. S. Adam définit le genre comme un ensemble

> … caractérisable certes par des propriétés textuelles […], mais surtout par une interaction langagière accomplie dans une situation d'énonciation impliquant des participants, une institution, un lieu, un temps et les contraintes d'une langue donnée [...]. L'interaction se déroule dans le cadre d'une formation socio-discursive donnée, et des genres de discours propres à la formation en question (Adam 2004:36).

Cette définition se fonde sur des critères hétérogènes, relevant, d'une part, de la structure interne du texte, et, d'autre part, de son environnement extralinguistique. Les aspects suivants sont pertinents et déterminants: la situation de production, l'ancrage institutionnel, la visée communicative, l'organisation formelle, le contenu thématique, le support et le mode de diffusion: le matériau de réalisation utilisé (S. Adam 2004:10). Les genres sont donc des événements communicatifs qui s'insèrent dans des contextes socioculturels spécifiques et qui obéissent à un certain nombre de modes de vie et de normes que partagent les membres d'une communauté discursive. La production d'un texte relevant d'un genre spécifique opère des choix tactiques des moyens linguistiques et sémiotiques et donne une configuration spécifique au texte en question, et ce en fonction des visées communicatives du scripteur. Les TR dans les mémoires et thèses peuvent donc être considérés comme un genre textuel. Ils obéissent à certaines contraintes imposées par une communauté discursive, le milieu universitaire et/ou scientifique, servent à réaliser une ou plusieurs visées communicatives identifiables et considérées comme telles par des membres du milieu universitaire ou scientifique et charrient une organisation textuelle qui met en évidence certaines normes linguistiques et non linguistiques dont l'actualisation coordonnée permet de réaliser le but ultime dudit genre. Les TR constituent un genre textuel indissociable d'autres genres scientifiques et/ou universitaires. Il serait plus convenable de parler de «sous-genrequi se manifeste dans plusieurs cadres et sous plusieurs formes». On peut distinguer deux sous-genres: 1) les TR dans les travaux scientifiques publiés (ouvrages, articles, rapports de recherche, etc.) et 2) les TR dans les mémoires et thèses, et autres travaux conduisant à l'obtention d'un titre universitaire[5]. Au-delà des particularités, les deux sous-genres ont en commun le fait qu'ils servent, à l'instar de l'acte de langage *remercier/remerciements*, «à accuser réception d'un cadeau et à exprimer sa reconnaissance au responsable de ce cadeau» (Kerbrat-Orecchioni 1996:86).

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[3] Qui propose une analyse exploratoire des textes de remerciement dans les thèses de doctorat en histoire soutenues à l'Université d'Oklahoma.

[4] L'unique étude dont nous avons connaissance est celle de T Roungtheera (2010) sur les textes de remerciement rédigés en français pas les étudiants Thaï.

Il existe, toutefois, quelques différences entre le genre textuel TR et le micro-acte de remerciement. Soulignons en premier lieu, qu'en tant que (micro)acte de langage, le remerciement se manifeste en situation de face à face (à l'oral donc), ou par média interposé (le téléphone par exemple), ou par écrit[6], et peut ainsi se réaliser au moyen d'un nombre très limité d'énoncés. Le TR, par contre, est une production écrite complexe, qui est indissociable d'un autre genre textuel (un travail universitaire ou scientifique). En deuxième lieu, le (micro)acte remercier est un rituel de la politesse, qui n'est pas lié à une situation de communication spécifique. Sa réalisation peut être spontanée et optionnelle. Le TR, par contre, fait partie de ces genres routiniers dans lesquels «les contraintes sont surtout «verticales», imposées par un lieu institutionnel» (Maingeneau 2002a:50). En troisième lieu, le remerciement en situation de face à face s'adresse généralement soit à une personne ou un groupe de personnes, alors que le TR s'adresse simultanément à plusieurs personnes: au(x) superviseur(s) du mémoire ou de la thèse, à la famille du chercheur, aux amis, aux institutions qui ont apporté leur soutien (matériel, financier) à la réalisation du travail et aux lecteurs potentiels du travail. Quatrièmement, remercier est un (micro)acte expressif, alors que le TR est un genre textuel multifonctionnel, qui «véhicule, dans le cas idéal, une seule valeur illocutoire correspondant en gros au résumé, à la perception globale qu’on peut avoir du texte. […] Certes, le même texte comporte une variété d’actes de discours qui, de surcroit, appartiennent à des types illocutoires différents» (Manno 1999:46). Autrement dit, le genre (expressif) TR peut comporter un ou plusieurs micro-actes de remerciement qui sont parfois accompagnés d’actes subsidiaires dont la fonction est de renforcer les actes de gratitudes énoncés. A cela s’ajoute le fait que les actes de remerciement peuvent être simples, directs, indirects (c’est-à-dire réalisés sous forme de compliments, d’information, de glorification, d’encouragement, etc.) ou complexes, c’est-à-dire réalisés au moyen d’un/ou plusieurs remerciements directs qui se prolongent par des actes subsidiaires. Par ailleurs, le TR est un genre (expressif) qui pose aussi la «question de la divergence entre finalité explicite et implicite» (Maingueneau 2002b:55). Derrière ce but explicite se cachent les visées implicites suivantes: 1) verbaliser/réaffirmer l’appartenance du scripteur au milieu universitaire (exprimer le respect du rituel que constitue la rédaction du TR); 2) établir/promouvoir l’ethos social et professionnel des bienfaiteurs et du scripteur (cf. Scrivener 2009:247); 3) construire ou assurer une crédibilité scientifique au scripteur, et ce à travers l’évocation des personnalités scientifiques et universitaires qui ont contribué à la réalisation du travail (cf. Giannoni 2002:8). Le TR se présente ainsi comme un mélange entre l’expressif (l’expression de la gratitude) et le promotionnel (la valorisation de l’image des bienfaiteurs) (au sens de Bhatia 1993).

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[5] Notre étude porte sur les TR dans les mémoires et thèses.

[6] Les cartes ou lettres de remerciement envoyées à un récepteur individuel ou collectif (institution) comme geste de politesse après un événement dont le scripteur a tiré profit (une réception, un accueil mémorable lors d'une visite, etc.) ou compte tirer profit à long ou à court terme (un entretien d'embauche, etc.)

1.2. De la complexité structurelle du tr. La macrostructure du TR résulte de son caractère multifonctionnel. Ainsi, le scripteur opère des choix tactiques des différentes stratégies rhétoriques et visuelles à sa disposition, des stratégies susceptibles, selon lui et/ou en fonction des conventions en vigueur, de contribuer à réaliser des visés communicatives explicites et implicites. Le texte produit à cet effet peut se subdiviser en plusieurs parties/séquences/moves et sous-parties. Chaque séquence ou move constitue alors une unité fonctionnelle dotée d’un contenu sémantique et pragmatique spécifique et réalisé au travers d’un ensemble de ressources lexico-grammaticales et/ou sémiotiques (cf. Nwogu 1997:122). Le concept de move permet surtout de constituer un cadre théorique et méthodologique «for the investigation and identification of what communicative functions interact to form the genre system of a class of discourses that have the same primary function» (Al-Ali 2005:10). Cette notion de move nous aide donc à cerner la structure générique ou encore l’organisation des différentes séquences en texte. En tant qu’unités fonctionnelles et non formelles les moves peuvent présenter des variations dues à certaines intentions particulières du scripteur. Les variations portent surtout sur les contenus thématiques, le nombre et l’ordre d’agencement des moves ainsi les moyens de réalisation linguistiques et typographico-visuels (nombre de lignes et/ou de paragraphes, les caractères, etc.) mobilisés. Dans l’ensemble, une unité peut être constituée d’un mot, d’un groupe de mots, d’un ou de plusieurs énoncés, d’une ou de plusieurs propositions, etc.

2. La constitution du corpus. Le corpus retenu pour cette étude rassemble 100 TR extraits de 49 mémoires soumis pour l’obtention du Diplôme d’Études Approfondies (DEA), 31 thèses de doctorat (DOC), 16 mémoires de maitrise (MA) et 4 mémoires

soumis pour l'obtention du Diplôme d'Études Supérieures Spécialisées (DESS). Ces travaux ont été présentés à l'Université de Yaoundé (I)[7] et couvrent la période de 1984 à 2007. Les disciplines représentées sont les suivantes: Biochimie [n=10[8]], Biologie [n=10], Chimie [n=10], Géographie [n=6], Histoire [n=10], Langue/Littérature Française [n=3], Mathématiques [n=10], Médecine [n=10], Physique [n=10], Sciences Économiques [n=7], Sciences de la Terre [n=10], Sociologie [n=4]. L'analyse de ces données s'est surtout intéressée à ce que Bhatia (1993:29) appelle «the structural interpretation of the text-genre», c'est-à-dire l'étude de la manière dont les scripteurs construisent leurs textes afin de réaliser, d'une part, le but communicatif global du genre textuel, et des intentions implicites, d'autre part. Ainsi, les résultats présentés dans la section ci-dessous portent sur la move structure des TR (3.1) et le contenu thématique, les visées pragmatiques et les formes de réalisation des composantes de la macrostructure ainsi identifiée (3.2).

3. ANALYSES ET DISCUSSIONS.

3.1. LA MOVE STRUCTURE DES TR. L'analyse des séquences des 100 TR de notre corpus nous a permis d'identifier la structure générique ci-dessous:

La move structure telle que présentée dans le tableau ci-dessus, c'est-à-dire l'ordre d'agencement des différents composants de l'organisation rhétorique des textes, n'est pas prototypique. Il s'agit plutôt d'une structure maximale qui se réalise rarement dans la plupart des textes étudiés. Chaque scripteur en choisit généralement des unités spécifiques pour construire son propre TR, et ce en fonction de la discipline, des types de problèmes rencontrés, des types d'aide reçus, et des visées communicatives du scripteur. Nos analyses montrent, toutefois, que le move 1 [l'en-tête] et le move 3 [les actes de remerciement] constituent les unités obligatoires auxquelles peuvent se greffer des éléments des autres moves.

Move	**Nom du move**	**Nombre d'occurrences dans le corpus**
Move 1	*L'En-tête* - Avec la mention *Remerciements* - Avec la mention *Avant-propos*	 85% 15%
Move 2	*Les remarques préliminaires / l'introduction*	40%
Move 3	*Les actes de remerciement*	
Move 3 – étape 3.1	Remercier et/ou louer Dieu	19%
Move 3 – étape 3.2	Remercier le(s) superviseur(s)	100%
Move 3 – étape 3.3	Remercier d'autres universitaires	76%
Move 3 – étape 3.4	Remercier les membres du jury	16%
Move 3 – étape 3.5	Remercier des institutions (pour appui financier ou logistique)	10%
Move 3 – étape 3.6	Remercier la famille	64%
Move 3 – étape 3.7	Remercier les amis / camarades de promotion / laboratoire /collaborateurs / collègues	75%

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[7] Les travaux soutenus avant 1993 portent la mention Université de Yaoundé, l'unique université du pays avant la réforme universitaire de 1993, date après laquelle l'Université de Yaoundé devient Université de Yaoundé I.

[8] Nombre de TR retenus.

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Move	Nom du move	Nombre d'occurrences dans le corpus
Move 3 – étape 3.8	Remercier des personnes précises (pour la collecte des données, la documentation, l'assistance technique, le soutien moral, etc.)	44%
Move 3 – étape 3.9	Remercier toutes les personnes non citées	48%
Move 4	*Les annonces*	
Move 4 – étape 4.1	Dédicacer le travail	1%
Move 4 – étape 4.2	Assumer la responsabilité pour les lacunes du travail	2%
Move 4 – étape 4.3	Demander l'indulgence des lecteurs	3%
Move 4 – étape 4.4	Formuler des vœux	2%
Move 5	*La signature / la formule de clôture*	2%

Tableau 1: Move structure des TR

3.2. FORMES ET FONCTIONS DES RÉALISATIONS DES MOVES. Cette section montre comment les scripteurs utilisent les éléments linguistiques et sémiotiques à leur disposition pour construire les différentes unités fonctionnelles susceptibles de verbaliser les visées communicatives explicites et implicites inhérentes à leurs textes.

3.2.1. MOVE 1: L'EN-TÉTE. C'est le titre du genre, une unité est obligatoire qui démarque le TR des autres composantes du mémoire ou de la thèse. Deux formes de réalisation ont été identifiées, notamment les intitulés remerciements (employés par 85% des scripteurs) et les mentions avant-propos (présentant une fréquence de 15% dans le corpus). Les TR intitulés remerciements[9] servent essentiellement à l'expression de la gratitude. Les avant-propos, par contre, présentent une structure hybride et remplissent plusieurs fonctions: ils comportent, entre autres, l'introduction/le résumé du travail, des informations sur la genèse de la recherche et les remerciements proprement dits. Les marques topo- et typographiques varient d'un TR à un autre: l'en-tête est généralement écrit en gros caractère (gras, italique, normal et/ou souligné) centré, encadré et/ou décalé des autres moves du TR.

3.2.2. MOVE 2: LES REMARQUES PRÉLIMINAIRES. Dans cette section, le scripteur fait un bref rappel/récit des expériences vécues/acquises, des efforts consentis, etc. pendant la période de la recherche. Cette unité constitue un exutoire, c'est-à-dire un espace où le scripteur se défoule et exprime des émotions qu'il ne saurait exprimer nulle part ailleurs dans le travail. Par ailleurs, le récit sert aussi et surtout à construire du scripteur une image positive et à plaider pour un accueil favorable de son travail, ou à l'indulgence par rapport aux éventuelles lacunes du travail (Hyland 2004:313). Comme la longueur et le contenu thématique de cette section sont variables, certains scripteurs optent pour une description comprimée, notamment à travers des groupes de mots tels que *ce travail a été l'objet de multiples difficultés, ou ce travail m'a parfois infligé des efforts*, d'autres préfèrent un récit plus détaillé:

(1) Quand j'ai pris la décision de faire les recherches en physique des particules, j'ai suivi un chemin qui m'a conduit de Douala à Yaoundé vers un homme dont je n'avais pas revu [sic] depuis plus de sept ans. Vous comprenez qu'il s'agit du professeur OWONO ATEBA. Pierre Lors de ce premier contact le professeur

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[9] Il faut signaler qu'un TR du corpus porte la mention MES REMERCIEMENTS.

> m'expliqua les principaux axes de recherches du laboratoire Atome et Radiation dont il a la charge, et me fit un bref résumé des travaux qui se font au CERN. Il me renvoya pour aller réfléchir encore. Je n'oublierai jamais ce premier contact, mais aussi ce TP[10] sur le traitement du signal d'un rayonnement alpha qu'il monta au moment où j'étais dans le chaud de l'encre pour préparer ce mémoire.

Cette section peut aussi comporter des lieux communs, qui se combinent souvent avec des récits plus détaillés. Comme lieux communs, nous avons relevé les énoncés suivants: *Un travail scientifique est le fruit de l'apport de plusieurs personnes; Un travail scientifique mené dans des conditions difficiles relève d'un miracle; Il est difficile de mener de travaux de cette nature sans la collaboration des autres* etc. Dans certains TR, la remarque introductive sert à préciser que l'expression de la gratitude est loin d'être un simple rituel de la politesse (ex. 2), ou que le scripteur ne voudrait pas déroger à la tradition (ex. 3). Les lieux communs ont une double fonction textuelle et pragmatique: ils introduisent le *move* suivant (c'est-à-dire l'unité réservée aux remerciements) et servent de pont entre *l'en-tête* ou les *remarques préliminaires* et le *move* subséquent (cf. Hyland 2004:313):

(2) Une partie de nous-mêmes ne trouverait jamais la tranquillité si, au terme d'un travail comme celui-ci, il nous venait l'ingrate fantaisie de taire les reconnaissances dont nous avons l'obligation à l'endroit de certaines personnes. Arrive-t-il alors que ces reconnaissances se lisent comme une simple tradition, elles ne traduiraient pas moins la sincérité de notre bonne foi.

(3) Je faillirai sans doute à la tradition si je n'exprimais ici ma gratitude envers tous ceux qui ont collaboré à l'exécution de ce mémoire.

3.2.3. MOVE 3: LES ACTES DE REMERCIEMENT. Dans cette unité, le scripteur exprime explicitement sa gratitude aux différentes personnes/institutions ou différents groupes de personnes cités dans cette rubrique. Attesté dans tous les textes du corpus, ce *move* est d'autant plus hétérogène que le scripteur mentionne différents types d'aide reçus. On peut donc subdiviser le move 3 en plusieurs étapes consacrées, chacune, à un récepteur/bienfaiteur spécifique. Le nombre et l'ordre de réalisation de ces étapes varient, bien évidemment, d'un scripteur à un autre[11]. Parmi les 100 textes analysés, nous avons en effet recensé 60% de TR présentant une structure minimale composée exclusivement des *moves* 1 (*l'en-tête*) et 3 (*les actes de remerciement*), le move 3 pouvant à son tour se subdiviser en plusieurs sous-parties destinées, chacune, à un récepteur bien défini (superviseur, membres du jury, famille, etc.).

Contrairement à Hyland (2004:313-312) qui classe les sous-parties de cette unité par rapport au type d'aide reçu[12], notre typologie se concentrera plus sur des personnes, groupes de personnes et institutions, et ce d'autant plus qu'une même personne peut avoir fourni plusieurs types d'aide au scripteur. Ce qui importe donc, c'est, comme les exemples le montreront, la mise en relief, d'une part, des personnes et institutions citées, et, d'autre part, la nature de l'aide offerte/reçue. Il n'est pas superflu de préciser que l'ordre d'énumération des personnes ainsi que le nombre de sous-catégories des actes de remerciement varient d'un scripteur à un autre et d'une discipline à une autre. L'analyse fait ressortir par exemple des TR dans lesquels les scripteurs remercient explicitement des camarades de laboratoire, des membres d'une équipe de recherche (biologie, chimie) et/ou des personnalités politiques ou traditionnelles (pour avoir autorisé l'accès à certaines sources d'information pour les travaux en histoire par exemple). Voyons à présent comment les différents actes de remerciement sont effectivement actualisés.

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[10] Lire *Travail Pratique*.

[11] Les étapes du move 3 telles qu'inventoriées dans la macrostructure ci-dessus sont données purement à titre indicatif.

[12] Aboutissant ainsi aux catégories telles que «*thanking for academic assistance*»; «*thanking for providng ressources*», etc.

3.2.3.1. MOVE 3–ÉTAPE 1: REMERCIER ET/OU LOUER DIEU. Le scripteur dit sa gratitude au Dieu Tout Puissant. Les termes les plus usités pour désigner l'instance réceptive du remerciement sont Dieu Tout Puissant, Seigneur, Dieu le Père, Seigneur notre Dieu, l'éternel le Dieu Tout Puissant, Seigneur Dieu Tout Puissant, Seigneur Jésus Christ. Ces termes sont écrits de diverses manières (en caractère gras, italique, normal, souligné, etc.). Les actes de discours les plus attestés dans le corpus sont, comme les exemples ci-dessous le montrent, l'expression de la gratitude (ex. 4), la glorification (ex. 5) ou la combinaison des deux actes expressifs (ex. 6). Les louanges sont plus fréquentes que les remerciements.

(4) Je remercie l'éternel le **Dieu Tout Puissant**, celui qui incarne le plus haut degré de la sagesse et dont l'Esprit Saint m'a guidé tout au long de ces travaux. Lui seul sait partager. Il donne à chacun, selon son besoin et au juste moment. Que sa volonté soit faite et non celle des hommes.

(5) Je te glorifie **Dieu** tout puissant à qui je dois la santé et la force, conditions sine qua non à la réalisation de ce travail.

(6) **A Dieu Tout-Puissant, Seigneur** ta grâce et ton amour m'ont soutenu durant toute ma formation. Chaque seconde, minute, heure et jour, ta fidélité était au rendez-vous. Tes œuvres sont merveilleuses, car «Tu penses donc Je suis …» Je ne te dirai jamais assez merci.

Ces marques de reconnaissance de la grâce divine sont certes toutes écrites en langue française, mais nous avons identifié un exemple où les versions française et arabe de la glorification sont juxtaposées (ex. 7). Certains scripteurs optent pour un jeu typo- et topographique et poétique particulier afin de donner plus de teneur expressive à leur gratitude.

(7) A l'heure du couronnement de ces années de dur labeur, nous disons: *Elhamdou li Lahi Rabbil aâlamine* (La louange est à DIEU, Seigneur et Maitre de l'univers).

3.2.3.2. MOVE 3–ÉTAPE 2: REMERCIER LE(s) superviseur(s). De manière générale, l'objectif de cette étape est de rembourser une dette intellectuelle au directeur/à la directrice de recherche. Ainsi, les candidats remercient leurs encadreurs tout simplement pour la (co)direction ou la supervision [du travail] ou pour avoir accepté de diriger le travail malgré [leurs] multiples occupations. Toutefois, plusieurs TR thématisent simultanément l'aide intellectuelle, matérielle, logistique, morale et même financière. D'autres soulignent des qualités académiques et humaines de leurs directeurs de recherche, notamment leur rigueur scientifique, simplicité, disponibilité, bienveillance, leurs admirables qualités d'hommes/de femmes de science, leur esprit d'abnégation, etc. Les marques de gratitude comportent généralement des substantifs, adjectifs, verbes et groupes verbaux destinés à actualiser une modalisation axiologique de type positif sur le référent superviseur. Par exemple:

(8) [Remerciements] Au Dr. KETCHA Joseph MBADCAM, pour la confiance que vous m'avez accordée en acceptant la direction de ce travail [….] pour l'accueil que vous m'avez réservé dans votre laboratoire, les précieux conseils et les encouragements que vous n'avez cessé de me prodiguer, la constante disponibilité dont vous avez fait preuve à mon égard ont beaucoup contribué à l'accomplissement de ces recherches.

La présence de certains termes d'adresse et de référence ne passe pas inaperçue. Du point de vue de l'adresse pronominale, on remarque le recours au vous de politesse, lorsque le scripteur feint un dialogue avec son encadreur. Par exemple:

(9) Au Dr. T. D. qui a suivi et dirigé ce travail. Votre entière disponibilité, vos conseils et vos sens critique [sic] ont constitué un facteur important pour la réussite de ce travail.

A la place du vous, la plupart des scripteurs emploient le pronom il, emploi qui s'interprèterait comme une stratégie d'évitement de la forme directe tu et/ou vous. En outre, l'énonciation délocutive permet de tenir compte d'un lectorat qui va au-delà de l'encadreur concerné. On note aussi l'évocation des titres académiques (Dr. et Professeur), noms des encadreurs, sans oublier leurs rangs académiques (Chargé de Cours, Maitre de Conférences, Professeur) et, dans certains cas, leurs fonctions administratives (Chef de département/du département de, Doyen de la faculté de…, Recteur de l'Université de…) et/ou politiques (Ministre, Ministre d'État, Député, etc.). La mise en relief des attributs académiques, administratifs et politiques de l'encadreur mène à l'emploi des termes complexes dans lesquels se trouvent combinés le nom de l'encadreur, son titre académique (Professeur ou Pr.), son rang académique (Maitre de Conférences), et (le cas échéant) sa fonction administrative (Chef du département de X, Doyen de la Faculté de Y).

3,2,3,3, MOVE 3–ÉTAPE 3: REMERCIER D'AUTRES UNIVERSITAIRES. Dans cette étape, le scripteur s'adresse surtout aux autres universitaires qui ont contribué directement ou indirectement au travail du scripteur. Sont évoqués à titre d'aide directe la documentation, les conseils, l'identification des spécimens, l'assistance au laboratoire, les critiques, la lecture de l'ébauche du travail, etc. Pour ce qui est des apports indirects, le candidat est surtout reconnaissant pour la formation reçue au premier et/ou au second cycle. Les marques de gratitudes choisies peuvent être inclusives. Elles se présentent alors comme suit: à tous les enseignants du département de …; à tout le personnel enseignant de la faculté… . En général, les scripteurs remercient (tous) leurs enseignants pour la qualité des enseignements dispensés, la formation reçue, leurs judicieux conseils et leurs encouragements, leurs critiques instructives, tous les efforts qu'ils n'ont cessé de fournir pour que [les étudiants] bénéficient d'une formation digne de ce nom. Les remerciements peuvent aussi être plus ciblés, c'est-à-dire s'adresser à des enseignants bien précis. Dans ce cas, les concernés sont nommément cités avec une indication de leurs titres, grades et/ou fonctions administratives.

3.2.3.4. MOVE 3–ÉTAPE 4: REMERCIER LES MEMBRES DU JURY. Cette étape a pour fonction de dire la gratitude (anticipée) aux membres du jury pour leur contribution à la validation académique et scientifique du travail présenté, plus précisément pour leur disponibilité à juger le travail et pour avoir accepté de porter un jugement sur [le] travail malgré leurs multiples occupations. Deux formes de réalisation ont été identifiées. La première option est celle d'un remerciement général et inclusif: le scripteur s'adresse à tous les membres du jury. On suppose ici que la composition du jury est en cours au moment de l'écriture du TR. Cela explique le recours aux formules comme: mes remerciements à tous les membres du jury qui ont accepté volontiers de porter un jugement constructif sur ce travail; [aux] membres du jury qui ont accepté de quitter leurs occupations pour prendre part à ma soutenance. Un autre cas de figure: lorsque le jury est connu d'avance, comme c'est souvent le cas pour les thèses de doctorat, le remerciement est plus précis, et le scripteur cite et remercie alors nommément les différents membres du jury. Par exemple: Je remercie les Professeurs B. C. F. et N. F. qui ont accepté d'examiner ce mémoire. Au-delà de l'expression de la gratitude envers les membres du jury, cette section a d'autres visées. Pour les membres du jury, la gratitude exprimée est une stratégie d'amadouement destinée à enclencher l'indulgence des personnes citées. Pour le lectorat, l'évocation des noms, titres ou rangs académiques de certains membres de la communauté scientifique (nationale et/ou internationale) ayant accepté de prendre part à la soutenance du travail en question est une stratégie destinée à construire une certaine crédibilité scientifique du chercheur et de faciliter, par conséquent, un accueil favorable dudit travail auprès du lectorat.

3.2.3.5. MOVE 3–ÉTAPE 5: REMERCIER DES INSTITUTIONS. La présence de cette sous-section varie en fonction des disciplines et des sujets traités. Il ne s'agit pas d'une sous-section obligatoire. D'autant plus que la plupart des mémoires et thèses sont rédigés grâce surtout à l'appui des parents biologiques/sociaux et des encadreurs. D'une manière générale, le scripteur évoque explicitement des institutions nationales ou internationales pour leur soutien financier (bourses de recherche), matériel/logistique (équipement, documentation, bases de données, etc.). Les formes de remerciement fluctuent entre l'évocation du lieu où le travail a été réalisé (le nom du laboratoire, l'université d'accueil pour des chercheurs ayant effectué des déplacements dans une autre ville du pays ou à l'étranger, un laboratoire, etc., son personnel et l'appui financier obtenu auprès de certaines fondations. Par exemple:

(10) Qu'il nous soit permis de dire que ce travail n'aurait jamais été conduit à son terme et dans les délais escomptés sans le précieux concours de la Mission française de coopération et d'action culturelle à Yaoundé, l'Association des universités partiellement ou entièrement de langue française (A.U.P.E.L.F – U.R.E.F) et l'Université de Yaoundé I à travers son Fonds universitaire d'appui à la formation des formateurs (F.U.A.F.F. 2000).

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3.2.3.6. MOVE 3–ÉTAPE 6: REMERCIER LA FAMILLE. Le terme «famille» renvoie à un groupe plus ou moins hétérogène comportant les parents (biologiques ou sociaux), les frères et sœurs, les cousins et cousines, les oncles et tantes, l'époux, l'épouse ou le/la fiancé(e), la belle-mère, le beau-père, les amis de la famille, etc. Si les relations parentales avec les personnes citées sont indiquées à l'aide des termes de parenté, il ne faut pas perdre de vue qu'il règne ici une très grande flexibilité du point de vue sémantique. Ce qui compte toutefois, c'est l'évocation du type d'aide reçue. Ainsi, les scripteurs sont reconnaissants envers les membres de la famille pour leur soutien moral et financier, la sympathie et la chaleur familiale, leur aide et les conseils sans cesse prodigués, tout l'effort qu'ils ont toujours consenti, leurs encouragements, l'assistance morale et surtout matérielle, etc. Les formes de réalisation et le contenu lexical des marques de gratitude varient aussi en fonction du statut social du scripteur (marié ou célibataire, avec ou sans enfants).

3.2.3.7. MOVE 3–ÉTAPE 7: REMERCIER LES CAMARADES DE PROMOTION, COLLABORATEURS OU COLLÈGUES. Cette étape se caractérise par l'emploi de certains termes d'adresse et de références qui accompagnent les remerciements. Ces termes permettent en effet de décliner divers types de relations interpersonnelles et académiques entre les personnes évoquées et les scripteurs. S'agissant des TR dans les disciplines comme la biologie, la chimie, les sciences de la terre, etc., disciplines dans lesquelles le travail en laboratoire est presque incontournable, il est fréquent d'identifier des remerciements s'adressant directement aux ainés de laboratoire […] pour leur chaleureux accueil et leurs conseils et leur assistance inaltérable au laboratoire. Il s'agit alors d'une marque de gratitude qui exalte en même temps le respect de l'ainé. D'autres marques de gratitude et termes d'adresse mettent l'accent sur les relations horizontales. C'est ainsi qu'on remercie des camarades de laboratoire pour l'esprit de collaboration et de convivialité. A cela s'ajoutent des remerciements adressés aux camarades de [la Xème] promotion pour leur soutien moral, ou aux membres/amis des groupes de discussion. Certains scripteurs remercient des collègues, trahissant par là leur statut socioprofessionnel (professeurs de lycée, professeurs d'université[13], employés divers, etc.), même si certains parlent de collègues de filière. A la place des remerciements envers les camarades de promotion ou de laboratoire ou en combinaison avec ceux-ci, certains scripteurs expriment leur reconnaissance aux amis et connaissances.

3.2.3.8. MOVE 3–ÉTAPE 8: REMERCIER D'AUTRES PERSONNES POUR LEUR SOUTIEN LOGISTIQUE, MORAL, ETC. Les motifs de remerciement varient en fonction des disciplines, des sujets traités et l'impact (immédiat) de l'aide reçue dans la réalisation du travail. Les scripteurs peuvent remercier des individus ou groupes de personnes. Les personnes ou groupes de personnes citées à ce niveau sont remerciés pour l'assistance dans la collecte et/ou l'analyse des données, la saisie informatique et/ou la révision linguistique du manuscrit, la documentation (le personnel d'une bibliothèque donnée), etc. Par exemple:

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[13] Exemples attestés dans les thèses de doctorat d'État.

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(11) Les populations Bakossi de SFBM et particulièrement celles de Bejange et Ebamut qui m'ont accepté sans aucune méfiance et pour leur hospitalité. Les chasseurs des Bejange et Ebamut qui ont, par leur franche collaboration, contribué à la bonne marche de mes travaux de recherche. Tous mes guides et porteurs, les assistants de chasse à savoir E.P. et B. N.P. qui ont toujours été disponibles pour m'accompagner lors des expéditions d'enquêtes.

3.2.3.9. MOVE 3–ÉTAPE 9: REMERCIER TOUTES LES PERSONNES NON CITÉE. Afin de désamorcer le reproche d'avoir oublié des personnes qui ont (effectivement) contribué au travail présenté, les scripteurs ont généralement recours à cette section (48% des cas). Elle peut se réaliser sous forme de demande d'excuse et/ou de justification, dont la fonction est de ménager la face positive/négative des personnes non citées et celle du scripteur. Par exemple:

(12) Je ne puis, hélas, citer les noms de tous ceux qui, de près ou de loin, ont contribué de manière ou autre, à la réalisation de ce travail. Qu'ils veuillent bien me pardonner, eux de nombreux auxquels je pense et que de tout mon cœur, je remercie.

3.2.4. MOVE 4: LES ANNONCES. Cette unité est constituée de plusieurs étapes, qui ne sont pas toujours actualisées dans le même texte. Nous avons identifié les étapes suivantes:

3.2.4.1. MOVE 4 – ÉTAPE 1: DÉDICACER LE TRAVAIL. Le scripteur dédie son travail à un individu bien précis. Par exemple

(13) Nous dédions cette thèse, A Monsieur TONYE BAKO Martial, notre Grand-Frère, dont les sacrifices nous ont, à ce jour, permis de réaliser cette étude; A notre fille NGO BILONG Pauline Chrystel, dont la venue au monde et les nombreux caprices attrayants et distrayants nous ont été un réconfort tout au long de nos travaux.

3.2.4.2. MOVE 4 – ÉTAPE 2: ASSUMER LA RESPONSABILITÉ PAR RAPPORT AUX (éventuelles) lacunes du travail. Le scripteur veut assumer ses responsabilités, marquer son territoire, affirmer son indépendance et se réapproprier le travail. En effet, à force de donner de la face aux autres, et ce à travers les différents actes de gratitude susmentionnés, le scripteur peut s'exposer à une menace notoire, notamment la dilution de son propre mérite. Il lui revient donc de préciser qu'il reste le propriétaire du travail et en assume toutes les lacunes:

(14) Inutile de préciser, bien entendu, qu'aucune de ces personnes ne saurait être tenue pour responsable, en dernier ressort, des lacunes et des approximations que cette étude recèle.

3.2.4.3 MOVE 4 – ÉTAPE 3: DEMANDER L'INDULGENCE DES LECTEURS. Le scripteur appelle à l'indulgence des lecteurs par rapport aux lacunes du travail. L'acte exécuté à cet effet se caractérise par l'emploi des structures dans lesquelles le scripteur demande explicitement l'indulgence des lecteurs, leur demande d'excuser les lacunes ou les supplie de lui accorder leur indulgence. Les trois possibilités sont illustrées par les exemples ci-dessous.

(15) Nous demandons par avance l'indulgence de tous ceux qui auront ce travail sous les yeux, pour les nombreuses lacunes qu'ils pourraient y trouver.

(16) Nous demandons aux lecteurs d'excuser notre carence dans telle matière, ou peut être notre exagération dans telle autre.

(17) Le lecteur exigeant voudrait bien nous accorder son indulgence aux imperfections et omissions pour ces premiers pas sur le sentier difficile de la recherche.

3.2.4.4. MOVE 4 – ÉTAPE 4: FORMULER DES VŒUX. en général, le vœu sert à renforcer les marques de gratitudes énoncées dans les sections précédentes. Deux types sont attestés dans notre corpus. Le premier type porte sur les attentes/espérances du scripteur par rapport à l'accueil qui sera réservé au travail (ex. 18). Dans le deuxième type, le scripteur invoque Dieu afin qu'il bénisse toutes les personnes remerciées (ex. 19).

(18) L'auteur ose espérer que ce fruit sera apprécié de tous à juste valeur. S'il n'en était pas ainsi, ce n'est ni la volonté, ni la détermination qui lui auront fait défaut.

(19) Que le Seigneur bénisse chacun d'entre vous, et que la vie vous apporte toujours santé, bonheur et prospérité dans toutes vos entreprises.

3.2.5. MOVE 5: LA SIGNATURE / LA FORMULE DE CLÔTURE. La signature ou la clôture des TR présente deux variantes. Dans la première, le scripteur clôture son texte avec la formule de politesse *respectivement votre + nom et prénom* ou avec un *merci conclusif*. Il peut aussi apposer son nom [prénom et nom] et la date au bas du TR. La deuxième variante, celle la plus employée, est une formule de clôture générique généralement énoncée sous forme de remerciement à l'endroit de toutes les personnes qui n'ont pas été citées nommément. La fonction conclusive de ce type de remerciement est surtout avérée lorsque l'acte de gratitude occupe la dernière position d'un TR qui ne présente pas d'autres formes de clôture. Sur l'ensemble des 48 TR, 42 (c'est-à-dire 87.5% des cas) sont clôturés par des *remerciements envers toutes les personnes non citées*. Ces remerciements inclusifs et conclusifs comportent généralement l'adverbe *enfin*, des expressions *comme tous ceux qui*, *que tous ceux qui, à vous tous qui, quiconque aurait*, etc. et les formules *de près ou de loin, d'une façon ou d'une autre*. Par exemple:

(20) Nous remercions ceux qui, de près ou de loin, consciemment ou inconsciemment nous ont apporté leur soutien. Merci grandement à tous ceux qui nous ont aidé, trop nombreux pour être cités tous. Nous leur assurons que l'anonymat pour nous n'est pas signe d'oubli, mais d'estime et de considération.

Certaines formules de clôture combinent le *vœu* et le *remerciement inclusif*. Par exemple:

(21) Tous ceux qui, de près ou de loin ont contribué à la réalisation de ces travaux de recherche, et que nous n'avons pas nommés explicitement ici; puisse le Dieu Tout-Puissant, par Jésus Christ les récompenser au-delà de toute mesure.

4. CONCLUSION ET PERSPECTIVES. Au total, les TR dans les mémoires et thèses au Cameroun comportent les unités fonctionnelles suivantes: *l'en-tête, les réflexions préliminaires / l'introduction, les remerciements, les annonces et la signature / la conclusion*. Cette structure textuelle n'est pas prototypique. C'est plutôt une struc-

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ture maximale rarement mobilisée dans la plupart des textes étudiés. Chaque TR résulte d'un choix tactique de quelques unités de cette structure maximale, avec des variations portant sur le nombre, la chronologie, les types et les formes de réalisation des unités fonctionnelles. La fréquence des *moves relevée* dans le corpus suggère les réflexions suivantes. *L'en-tête* (move 1, réalisé à 100%) et *les actes de remerciement* (move 3, dont la fréquence varie selon le «destinataire») sont les unités constitutives du genre TR, *alors que les réflexions préliminaires / l'introduction* (move 2, avec une fréquence de 40%), *les annonces* (move 4, dont la fréquence de chacune des différentes étapes ne dépasse pas 3%) *et la signature / la conclusion* (move 5, réalisé dans 2% des cas) y remplissent des fonctions périphériques. Le move 3 consacré aux *actes de remerciement* présente beaucoup de variations portant sur l'ordre d'actualisation, le nombre et les formes de réalisations, même si la «primauté» revient généralement à l'étape consacrée aux superviseur(s) (100%), autres universitaires (76%), amis et connaissances (75%) et membres de la famille (64%). On note aussi un pourcentage non moins négligeable (19%) des marques de gratitude envers Dieu, laquelle s'énonce surtout à travers des actes de remerciements et/ou de glorification[14]. Et lorsque cette étape est attestée, l'acte de gratitude à l'intention de *Dieu Tout-Puissant* est placé soit avant les autres actes de remerciement[15] soit à la fin du *move* 3. Nous avons aussi remarqué que plusieurs TR comportent ou se terminent par des remerciements à l'intention de toutes les personnes non citées (48%), laissant transparaître le souci des scripteurs d'être le plus inclusif possible dans cet exercice de reconnaissance. La majorité des scripteurs n'assument/n'énoncent pas (explicitement) la responsabilité pour des lacunes éventuelles de leurs travaux (2%). C'est aussi le cas pour la *demande d'indulgence* qui est rarement formulée (3%). Cette faible fréquence des étapes du *move* 4 (les annonces) pourrait s'expliquer de différentes manières: la focalisation excessive sur les actes de gratitude, le manque d'humilité, l'oubli, etc.

Comprendre l'organisation textuelle des TR est certes vital, mais plusieurs études s'avèrent nécessaires pour mieux cerner l'expression de la gratitude dans les travaux universitaires au Cameroun. On citerait à titre d'exemple: 1) une étude qualitative et quantitative des formes de réalisation des moves des TR et de l'impact des pratiques socioculturelles sur les propriétés lexico-grammaticales des moves; 2) une analyse d'interviews de quelques maîtrisards et thésards sur leurs pratiques scripturaires afin de comprendre les motivations à la base de certains choix sémiotiques et/ou lexico-grammaticaux[16]; 3) une mise en lumière, à partir de la notion de *hiérarchie illocutoire*[17], du caractère complexe et multifonctionnel du genre TR.

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[14] Les TR camerounais sont, de ce point de vue, similaires à ceux du contexte arabo-musulman, comme l'a si bien montré Al-Ali (2010).

[15] Lorsque le TR ne comporte pas de *remarques préliminaires*.

[16] Voir à ce propos Hyland & Tse (2004).

[17] Voir à ce sujet Manno (2009).

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XIV

Presented at LACUS 35

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AN INFINITE NUMBER OF SENTENCES

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Abstract. The idea that what is called language can create an infinite number of unique sentences is shown to lead to the possibility of sentences of infinite length, requiring an infinite sentence generator hardwired in the brain or prespecified in the DNA. An examination of these ideas and concepts shows that they have nothing to do with the operation of human beings in the real world.

Keywords: language, natural language, sentence, infinite, communication

Languages: (none)

Many linguists claim that language can create an infinite set of sentences using a finite set of elements, i.e., symbols (Lyons 1992:7) or words. The claim that language can create an infinite set of sentences (IS claim) is not unique to any linguist but has become widespread among modern linguists, e.g., Moulton (1974:6). Still, this claim is not universally accepted for various reasons (cf. Yngve 1996). Though some linguists have challenged the IS claim; these challenges usually have something to do with the mathematics of infinity. In this paper, we will examine the IS claim, assuming that the IS claim is meant to be taken literally. We will assume that when the term infinite is used by linguists in the IS claim they use the term in its mathematical sense to mean an inexhaustible set of sentences; we will also assume that everyone means the same thing when they use terms like sentence. I make these assumptions only for the purposes of discussion. As a Hard Science Linguistics researcher, I do not adopt any of these postulates as my own, however.

1. The IS claim. Moulton (1974) explains the claim in considerable detail. He does not simply speak of the claim as linguistic gospel use the word infinite. He says, “Human language … can be used to send and receive an unlimited number of messages; there is simply no end to the number of things we can say, in any language. A communications system with this unlimited capacity is ingenious indeed” (Moulton 1974:6). Even though the word used is *unlimited,* the effect is *infinite*, since both words mean *without end*. The IS claim is used as a justification for the claim that language is rule-based, i.e., has a grammar. It is actually the foundational claim for grammar and not just for Moulton. In short, if the IS claim fails, traditional linguistics needs other support for its claim that language needs a fixed grammar. No such support has been forthcoming.

The IS claim is usually examined in reference to two essentially mathematical ideas: 1) natural language combines linguistic elements into sentences, just as a formal language combines its elements into statements in the formal language; and 2) language has a finite or infinite sentence length, depending on the preference of the theorist. Both of these ideas confuse two things. First, the IS claim tacitly says that

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natural languages work like the theoretical language discussed in most linguistic theories and not vice versa. Second, the IS claim confuses strings (as understood by computer science and logicians) with sentences (as understood by linguists). Strings are meaningless (in the semantic sense) groups of elements from some character set and exist only in formal languages. The character set that serves as a source of elements for strings need not be the character set of any known human language. It can be a set of symbols that are meaningless outside a particular system. We are accustomed to such sets, e.g., music notation, Morse code, electrical symbols. Strings only exist in formal languages because we have invented them. Strings do not exist independently in the real world.

The IS claim arises because of serious domain confusion inherent in traditional linguistics (Sypniewski 2007). The IS claim confuses artificial languages with people communicating with each other. The IS claim says that language rather than people creates an infinite number of strings but does not actually say that people operating in the real world can create either an infinite number of sentences or infinitely long sentences. The language that the tradition talks about when it talks about the IS claim is not any natural language but a formal language that results from the abstract grammar that is created by traditional theories. The tradition claims that there is no confusion, because natural languages act just like artificial or formal languages and can therefore do what artificial languages do. This is precisely the opposite of the way that artificial languages are designed to work. Artificial or formal languages are simplified languages, in part because we cannot duplicate the complexities of human communication in an artificial scheme.

1.a. RETURN TO STRINGS. A string is an arbitrary collection of elements from some character set, assembled according to the rules of some formal language. The natural language sentence *the cat sat on the mat* is identical in form with the string *the cat sat on the mat* produced in an artificial language. There is no way that we can tell by inspection whether *the cat sat on the mat* comes from a natural or a formal language without knowing its origins. If we accept that the difference between a string and a sentence is, at least in part, the difference between a formal structure that does not have meaning (by definition) and a linguistic structure that must evoke meaning in order to be useful, we can see that the IS claim is not a claim about analysis but, rather, one about production.

In formal languages, the method for creating new strings is by repeated concatenation of elements, whether those elements are from the formal language's character set or other strings (often referred to as *substrings*). Traditional linguists often point to assembling words out of smaller elements, e.g., phonemes, as an analogous feature of language. It does not matter whether a traditional linguist prefers to see that the smallest elements of a natural language are some things on the level of phonemes or words or something else, concatenating those elements in an essentially arbitrary way produces a huge amount of nonsense which must be discarded. This fact is taken by traditional linguists to support the claim that every natural language must have a grammar to distinguish the good sentences from the bad.

If we use the concepts developed by Chaitin (1998, 2001) to examine the IS claim, we have to confront the notion that any such system must contain a substantial amount of randomness. Indeed, a system that can create an infinite number of sentences or strings can produce at least one sentence or string that is infinite in length or, to put it another way, that will never end, no matter how much time we give the IS generator. When the IS generator begins, we cannot predict whether the sentence or string that it is in the process of producing will be infinite in length. Obviously, if we wait for such a sentence or string to be completed, we will never be able to parse it and determine whether it is a good or bad sentence, because the sentence or string will never be completed. If we parse the sentence while the IS generator is in the process of generating it, we cannot say that the parse will be correct in the end. If and when we apply grammar rules to this production, we cannot say with any certainty that a grammar rule has been correctly applied, because something that is still to be generated might change the application of the rule. Therefore, we can neither completely parse nor apply a set of grammar rules to a sentence or string that is infinitely long. As a result, there is at least one sentence or string that can be produced by language that cannot be determined to be either grammatical or ungrammatical. There is some similarity between this argument and Gödel's Incompleteness Theorem. No traditional linguistic system can produce a complete grammar of any language which claims to incorporate an IS generator, because such a grammar cannot resolve the issue that is the *raison d'etre* of the grammar in all cases.

Any attempt to modify an IS generator to produce large numbers of strings that satisfy the grammar of the language results in a series of circular arguments. Essentially, if language applies grammar rules before or during the creation of a sentence or string using an IS generator, we must also claim that grammar exists separately from and prior to the IS generator. If that is so, there is no need for an IS generator because language could directly create grammatical sentences or strings from the rules of grammar. But then we would encounter another problem: if language only produces good sentences, there is no reason for grammar. If the traditional belief in the need to distinguish between good sentences and bad is the only reason for the existence of a set of grammar rules, and if language cannot produce bad sentences, what does language need a set of grammar rules for? Traditional linguistics sees a grammar as a sort of filter, but if there is nothing to filter out, why have a filter in the first place?

2. THE REAL WORLD. If we consider our daily routine, we do not find that people produce large numbers of meaningless sentences. In fact, doing so might be a cause for medical intervention unless the nonsense was intentionally created for some artistic or other purpose. The qualification about creating art shows us something else about the IS claim: an IS generator operates without intent, a consequence of producing strings rather than sentences. There is no significant evidence that people create enough meaningless sentences to warrant the evolutionary modification of the

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human body in order to deal with such a problem. Yet, grammatical rules and the IS generator are supposed to exist on a genetic level which is subject to evolutionary pressures.

We might be tempted to agree with Moulton's claim that we can speak about anything at all. Is this so? I have randomly selected a book called *The Dreams of Reason – The Computer and the Rise of the Sciences of Complexity* by Heinz Pagels from my bookshelf. I randomly opened it to page 201 and randomly selected this sentence:

> *People like to make the brain-computer comparison,*
> *sometimes for fun and sometimes seriously.*

Could every human being who ever lived or might ever live generate this sentence? Note that when we introduce people into the equation, we must talk about sentences rather than strings. For the vast span of human existence, the answer would have to be no. Most trivially, the sentence is written in modern English, though there are non-trivial reasons. If we ask whether most people could generate such a sentence randomly, the answer must be no once again. Not only is it highly unlikely that this sentence would be randomly generated at all by any one person, it is a vanishingly small possibility that it would be randomly generated by everyone. To generate this sentence intentionally requires a person to know the meaning of the sentence, i.e., that the elements of the sentence exist in some lexicon and that they can be combined in precisely this way. Children below a certain age do not have the required skills or knowledge to do so. Intentionally creating such a sentence requires a cultural background that large numbers of people do not have. Most people have no need to generate such a sentence.

Moulton's claim also tacitly assumes that language never changes and that the world is full of Plato's eternal ideas. We know that language does change over time and that ideas are not eternal. It is as unlikely that a 9th century Anglo-Saxon would use the word *computer* (or whatever it might be in Anglo-Saxon, even if it were conceivable) as it is for your barber or hairdresser to talk about *wergeld*. Pagels' sentence is not isolated, as traditional linguistic examples tend to be. It comes from a book and is preceded by over 200 pages of text. For the IS claim to work, each of the preceding sentences must also have been randomly generated. Furthermore, each word in each sentence must have been randomly selected from some collection of words which was assembled from randomly selected elements from some other collection of sub-word elements. To say that this is possible confuses Heinz Pagels with one of the mythic chimps trying to type Shakespeare; indeed, even Shakespeare is confused with one of those chimps.

Probably no one would say that Pagels' book or any other book was assembled with an IS generator. If we pushed back, through short stories and poetry and jokes and captions to everyday discourse on an elevator and beyond, we would eventually have to confront the fact that there is nothing that we could point to that is the product of an IS generator. For those who would say that the IS generator accurately models

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something about actual people, there are two questions: what does it model and why do we have it?

3. THE IS MODEL. We cannot say that the IS claim accurately models people's flexibility in communicating with other people, because the IS claim assumes too much randomness and produces too much nonsense. Having a true IS generator would have been very detrimental to our evolutionary development. Warnings of danger need to be accurate, quickly generated and very brief. If our ancestors had the type of IS generator predicted by the IS claim, a person might try to warn others about the approach of a hungry saber tooth tiger only to have their generator start a nonsensical nine million word string. If early homo sapiens did not have the same sort of IS generator that we have, when did we develop ours and, once again, why did we develop it?

Some might be tempted to say that meaningful sentences can be infinitely long or, at least, arbitrarily long. We now confront what we may call the **Very Problem**. Here is a sentence:

I love you very much.

We can easily expand it: *I love you very, very much*. We can even cram in 4500 *verys* or any number of *verys* we wish. The question now becomes: what additional meaning does the 4500th *very* add that the 4499th *very* does not already supply? This question asks several things, actually. Does each *very* have the same quantum of meaning as every other *very*? Does adding a *very* somehow dilute or add to the quantum of every other *very* and does retracting a *very* somehow increase the quantum of meaning of its fellows or dilute the overall meaning of the sentence? Does adding a *very* do any more than add tedium to the conversation? Why would anyone want to do this? Even if we grant that we can generate an infinite sentence this way for the sake of argument, we, in turn, need to admit that we cannot do this with every collection of words. For example, if we had the sentence:

That color is very blue

We could not generate a meaningful sentence by infinitely repeating the words *that, color, is,* or *blue,* whether we do so by multiplying words or by randomly scattering them throughout the sentence.

Perhaps, one might say, that we can get around these problems by saying that we cannot produce an infinitely long sentence. Let us place an arbitrary limit on sentence length of a million words. To create such an arbitrary limit means that our grammar has a rule which says any sentence that is more than a million words long is ungrammatical. Alas, this will not resolve our problem. Suppose that we created a one million and one word long sentence that, but for the sentence length rule, complied with all other grammatical rules. Is it good or bad? Depending on one's attachment to sentence length rules, one might say bad while another might say good. Who is correct? There are salient arguments either way. The problem cannot be resolved. If we say that the sentence length rules should be modified to say that a sentence is good if it complies with all grammar rules even though it is longer than a million words, we create a meaningless rule because, by definition in a formal language, a sentence (string) is bad if it violates any rule. If the sentence length rule is to be strictly enforced, we have created a system of grammar which discards otherwise good sentences because of some arbitrary size limit. In short, we have created a system of grammar which does not meet its own objective: to create a system which differentiates good sentences from bad and accepts all and only good sentences.

Ultimately, the IS claim is a claim about time. To say that language can create an infinitely long sentence is to say that language is not constrained by time. This may or may not be true for a theoretical entity like language but it is certainly not true for people. People are constrained very strictly by time. If all we could say is this, it is obvious that any linguistic theory that relies on the existence of an IS generator (to date, all grammatical theories) does not and cannot accurately model the way that people communicate with other people.

4. A FINAL PROBLEM. There is a dispute about whether language can produce an infinite number of sentences. This dispute cannot be resolved because the IS claim is not a claim about the real world. Many, if not most, linguists recognize this. However, the IS claim is the basis for the claim that language has grammar. Language needs grammar to determine whether the products of the IS generator are acceptable or not. There is no reason to believe that when people communicate with other people, an IS generator is involved. If, as HSL researchers believe, none is involved, what then is the basis for the belief that when people communicate with other people, grammar is somehow involved?

5. CONCLUSION. There is no evidence that human beings have, as part of their physical makeup, an IS generator. Being finite, we cannot generate infinitely long sentences. The IS claim arises from the domain confusion inherent in traditional linguistics (confusing people communicating with a hypothetical construct called language). Traditional linguistic theories ground the need for a grammar on the IS claim. Grammar is a system of rules needed to distinguish good from bad sentences (actually strings). If the IS claim actually modeled some aspect of the real world, people could not communicate with other people in a timely fashion, because the IS generator would waste too much time generating nonsense. Occasionally it would get stuck and generate an infinitely long sentence or, at least, one that would take longer to generate than the remaining life span of the unfortunate human involved. Grammar cannot work on an infinitely long sentence. Given the lack of support for the real world existence of IS generators and the questionable theoretical basis for the claim, the claim that humans need grammar or have a grammar encoded in our genes must be viewed with great skepticism. If the claim that we humans need or have grammar must be viewed with skepticism, all other claims which have a grammatical component must also be viewed with skepticism. Traditional linguistics has a significant problem which cannot be ignored any longer.

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